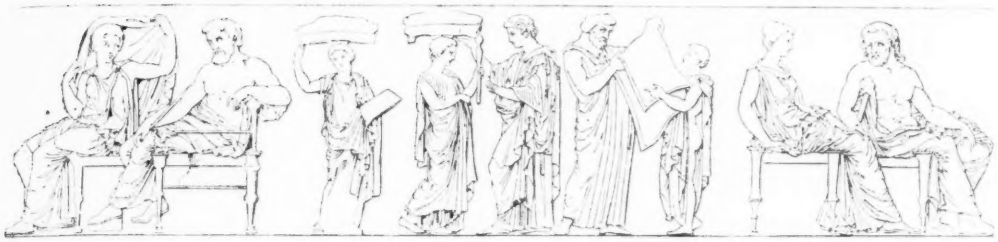

FURNITURE: DOMESTIC AND ECCLESIASTICAL.

By John Belcher [*F.*], Mr. C. F. A. Voysey, Mr. Aldam Heaton, and W. D. Caröe, M.A. Cantab. [*F.*]

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The President, J. Macvicar Anderson, in the Chair.

INTRODUCTORY.

Mr. President and Gentlemen,—

AMONG subjects which should occupy the attention of the architect, there are few which concern him more closely than the subject which the Art Committee have selected for our consideration this evening. The proverb that "fine feathers make fine birds" may be applied to buildings. And if "dress" is any indication of the position and character of the individual, then "Furniture" has an important function to fulfil in relation to buildings, and the architect should be concerned in the clothing of his offspring.

Furniture may be said, primarily, to have had an independent existence, and was probably first designed for a migratory condition. Great chests which contained all the possessions of their owners were carried about from place to place, and formed the table, seat, or wardrobe of the dwellers in tents. The chest was the progenitor of the press, the cabinet, the dresser or sideboard, with the addition of legs, which, in contradistinction to the animal creation, only became necessary when they ceased to travel. With the fixed and permanent abode came the interlacing of the furniture with the building, such adjuncts being recognised under the term "fittings." They are the connecting link between the building and its furniture, whether of church or mansion.

It may be urged that with the prevalence of short leases, and the precarious holdings of modern dwellings, furniture, which is important "personal estate," must naturally be considered apart from its position or surroundings. It is this condition of things which has suggested those modern anomalies known as "over-mantels," "over-doors," and such like accessories—a kind of "applied furniture" intended to supply an architectural deficiency or a so-called "long-felt want"—and contrived for the display of spurious heirlooms or demoralising caricatures of art objects.

For transitory purposes there can be no doubt that furniture should be selected for general utility; it should be simple and serviceable, and of average size, and such as can be readily adapted to existing conditions. In the ideal state, however, when an Englishman's castle is really his own, we may be reminded that furniture has a place among the arts, and that, with the arts, its highest and best existence is in conjunction with architecture. When the structure is properly blended with its contents, when screens and panellings, cupboards, window-seats, chimney-pieces, and things half room and half furniture are side by side, then the movable

objects should bear some relation to such fittings; it is in the midst of these homogeneous surroundings that repose and comfort may be secured.

For this pleasant consummation the architect should direct and influence the craftsman in the important matter of scale in the movable furniture intended for general use in his building; for it is of the utmost importance that it should be in due proportion to the room it is to occupy. True, there are certain things fixed by the requirements of the human body, but there is a proportion in the relation of spaces in the room to its furniture which must be secured. The apparent size of a room can be reduced and spoilt by some disproportioned cabinet or bookcase, which may itself be out of scale with other furniture in the same room.

The selection of disproportionate furniture is one of the commonest errors into which the inexperienced fall who purchase ready-made furniture exhibited in lofty show-rooms or warehouses. As with a ready-made suit of clothes, the result is decidedly "sloppy," however fine the "figure" it covers. With furniture, as with clothes, there may be certain articles which may be purchased ready-made, but the larger articles should be specially designed, and it will be found that the additional cost is only in proportion to the comfort gained.

The question of *cost* invariably meets us sooner or later, generally sooner; but in the matter of furniture, like many another, it is better to have a little which is *good* and serviceable, than to crowd the room with what may be termed "display furniture." The collection of articles, or "museum of incongruous accumulation," which too frequently crowds the modern drawing-room is apt to be unpleasantly aggressive. In an old mansion, provision may rightly be made from time to time for the display of heirlooms, or choice and valuable historical treasures which have been handed down from generation to generation; but the process of first purchasing fussy cabinets with numerous shelves, brackets, and bevelled glass cupboards, and subsequently filling them with articles bought specially to occupy the voids, is pretentious and foolish.

In an introductory Paper my remarks need only be few and general in character. I must leave to the specialist the task of describing the qualities, methods, and limitations of his art; but there are, however, a few observations which, as an architect, I may be permitted to contribute. The archæological side of the subject is valuable in studying methods and examining results. It will be found that some of the best work was done between 1600 and 1660. Italy and the Netherlands teach us much during the Renaissance; after which French influence makes itself apparent. Again, in the latter half of the eighteenth century the familiar names of Chippendale, Heppelwhite, and Sheraton meet us, and their works are so familiar, and so modern in fashion, that their special characteristics need not be touched upon. I have always admired the clever way in which the maximum of strength with the minimum of material secure apparent lightness and beauty of form. A careful study of the sections of the several parts of their chairs, tables, &c., will amply repay the student.

There are in all periods certain recognised formulas which characterise good work. Mouldings, for instance, must be small and delicate, the carving soft and in low relief, with no high projections in parts or coarse bulbous forms. Indeed, in cabinet decoration, where marquetry or intarsia, inlays of ivory, mother-of-pearl, and other materials are so appropriately and extensively employed, there is much that is suggestive of the right lines of development. Tone, colour, and variety of surface are all obtained by such means. In old work the inlays were worked in the solid wood, which was cut away to the required pattern; but the modern method is to insert the pattern into veneer prepared to receive it; and it is this increased facility which probably has given rise to its abuse as vulgarity, loudness of colour, and violent contrasts followed in its wake.

In all good work both form and construction are the result of long tradition, and one of

the great charms is directness and evident fitness of purpose. A friend of mine has remarked, with some truth, that the kitchen deal table is a survival and example of unvulgarised furniture, and he holds up for admiration the frank simplicity of the fitting up of St. Jerome's study, as seen in the picture by Giovanni Bellini in the National Gallery. There is much which is suggestive in old pictures; among other examples may be noted the admirable furniture which Carpaccio has placed in the bedroom of the sleeping St. Ursula.

Undoubtedly furniture is, or should be, decorative; but it is an abuse of its purpose when employed as a means of decoration. When it was originally found necessary to cover the internal walls of a mansion, and shut out openings, a heavy, pliable material was used, and this furnished at once a decoration which we recognise as tapestry. This is a legitimate development, and Mr. Heaton will tell us how hangings generally can be ornamental as well as useful. The pleasant folds and soft rounded forms in which they hang contrast well with the sterner architectural lines of the room, to the advantage of each. Drapery should not be regarded as a provision for shutting out objectionable architectural features from view, but should have its proper place assigned to it by the architect, and be the means in his hand for easing and softening the uses of a building to human requirements.

In addition to furniture suitable for ordinary occasions, there are many and appropriate opportunities for the use of highly-decorated furniture, particularly in ecclesiastical work, and where the arts of the painter and sculptor can be pressed into service. In reredos, screen, and stalls, each artist can have a part, and all combine to beautify objects devoted to sacred purposes. Again, the treatment of an organ-case affords an excellent opportunity to the artist. I have on a former occasion referred to what I consider the right treatment of this large piece of furniture. There has been no general advance in the design of ecclesiastical furniture, but a strong tendency to slavishly copy mediæval examples. I think they should rather be regarded in the light of finger-posts to direct us in the right way, so that everything we touch may be, if possible, a living work, fresh and interesting, while evincing relationship to an ancient lineage. The whole subject of Ecclesiastical Furniture is so prolific and important that I am glad we shall have the benefit of some remarks from Mr. Caröe upon this particular branch.

The notable modern examples of decorated domestic furniture I must refrain from particularising; but we may take note that in all such examples, as in all successful work, there has been no hurry—undue haste is fatal to good work. The skilled artist may be quick in manipulation, but he cannot dispense with time for thought and the expenditure of brain-power if his work is to live. Mere smoothness or high polish of surface will not make up for the absence of that thought which should have been bestowed beneath it. In this hurrying and impetuous age the artist and craftsman must not be caught in the whirl, but must be content to produce slowly and deliberately, leaving to Tottenham Court Road and machinery the business of producing work in every known and unknown style as rapidly as it will pall or fashion change.

JOHN BELCHER.

DOMESTIC.

MR. PRESIDENT AND GENTLEMEN,—

THE subject of "Furniture" is a most depressing one; there exists so little artistic reasoning. Rich and poor alike are content to order their furniture from the upholsterer, as they do their funerals from the undertaker. The result is very similar, the bill being the most lasting impression made on their minds. What they have paid is the measure of their greatness.

The intemperate indulgence in display and elaboration, in gilding and veneer, and the feverish thirst for artificial excitement are all part and parcel of our proverbial restlessness. Too much luxury is death to the artistic soul. So there is no desire for simplicity, repose, harmony, dignity, or breadth. The result of all this is that the poor architect, who labours to attain these virtues in his interiors, is exposed to the insult and indignity of having all his work spoiled by the upholsterer. The client never dreams that his architect's province is beyond drain-pipes and drawings, and has often himself received an excellent education in decoration and furnishing from periodicals and handbooks. Therefore he feels any interference on the architect's part, in the choice of furniture and fittings, is rather an impertinence. For this state of things, in a great measure, we have to thank the spirit of revivalism.

Mankind is still very much in the monkey stage. We mock and mimic old and new work, good and bad. Styles, fashion, eccentricity, are immortalised—admired one season, detested another. The public taste is wafted to and fro by the breezes of reactionary thought. From one extreme to another we rock, without any sign of regaining an equilibrium. Suppose some lunatic, in an age of sickly elaboration, starts the notion of leaving out all ornament. Immediately the idea is caught up by many of the monkey tribe; and the amusement, if it be made a commercial success, lasts for a while, until so many are playing the same game that it becomes time for another reaction, and so on.

Precedent, the sanctifying weight of a great name, museums and libraries, sketch-books and foreign travel, all these things, good in themselves when wisely used, are now being abused and misused to a very great extent. The god of Commercialism is offering rewards all round to the best mimics. I must say here that this very condition, this imitative power which I deplore, has produced most exquisite executional skill, and, as a preparatory stage of man's existence, no doubt is as it should be. But, it is clear, Art must be built up on a firmer basis. We must ever depend more and more on the human faculties of reason, conscience, and love. Let us apply these faculties to all that is done in the name of Art. Let every man judge furniture from the point of view of reason. Let us ask, Is it fit and thoroughly suited to the purpose for which it is intended? Is it as strong as, and no stronger than, it should be? And from the point of view of conscience ask, Is it true—is it all it pretends to be? Does it express qualities and feelings consistent with its owner and its surroundings? Is it faithful work? And for love's sake ask, Is it proportioned, coloured, and disposed as the natural beauties in creation? Are its lines and masses graceful and pleasing? Do any of its parts quarrel? Does it express sobriety, restraint, and purity? From the emotional point of view there are countless questions to ask: What are the associations which attract or repel me from this thing? Surely association is often the strongest force in governing the taste, because reason and conscience are not cultivated and equally applied.

Until works of art are judged on their own merits, examined and tested as to their intrinsic worth, taste will be fickle, and subject to endless vacillation and corruption. The cultivation of individual judgment and taste, apart from authority, will inevitably lead to a more genuine appreciation of the past. Instead of accepting any period of great work on the strength of its name, we shall be able to sift the good from the bad, and appreciate the difference between reasoning admiration and blind flattery. Happily, there are many who, though not artistically trained, have the honesty of soul to revolt from the tawdry pretentiousness of the bulk of modern furniture, and, in consequence, have encouraged the reproduction of some of the old simple furniture; which furniture, I venture to say, was originally the direct outcome of human intelligence brought to bear on human needs, and not born of any spirit of revivalism.

It is clear, then, that we must have a logical basis for our design in furniture; as in all else, laws must be discovered and obeyed. Then the best work will result from well-understood

requirements, provided always our motives are noble and not degraded by exhibitions. How can Art survive the effort to create an impression, to gain public applause, to cut out one's neighbour by some flaring colour-scheme or eccentric form? Indeed, for exhibition work, the questions to be considered by the designer are of a totally different order from those before mentioned.

I fear I am expected to say something much more practical about the design of furniture. I wish I could say something helpful; but I am myself groping in the dark, struggling to find out the true laws which govern fitness and beauty. We must all be impressed by the utter want of harmony between the furniture and the architecture of to-day, except perhaps in

SIDEBOARD IN AMERICAN WALNUT, MADE FOR THE LADY LOVELACE. (From a photograph by H. J. L. J. Massé.)

jerry-built villas—there is a kind of harmony there. If artistic feeling always accompanied the architect's knowledge of materials and construction, he would in time, no doubt, be recognised as a fit person to design furniture. Then some sort of harmony might once more be seen. But, since the furniture has been taken out of the architect's hands and put into the upholsterer's, the tendency has been to make the architecture to fit the furniture.

Still, there is hope; things must change, and are changing. There is a widespread feeling that greater simplicity would lead to truer richness. We must restrain the carver, the inlayer, the polisher, and the metal-worker, and be careful that the thought in their design is as good as its execution. Also encourage them to concentrate ornament, and cease to use it as a means of hiding cheap construction and bad workmanship and material. It is one of the grand virtues of simplicity that, unless the design and workmanship are good, the faults are more

readily felt. Elaboration covers a multitude of sins, and, I might add, virtues also; for the habit of inlaying in beautifully-figured wood, like moulding and carving figured marble, is a sacrilege not to be tolerated. The bulk of modern inlay is so deadly dull in design that one resents the destruction of the natural beauty of the wood into which it is put. Our carvers, too, are dull as ditch-water. They have no joyful tales to tell, no sign of belief in anything but revivalism. For my own part I would rather see one healthy thought badly cut than all the ornament of Italy skilfully imitated by a human ape. Of the metal-work for furniture, saving the work of a few worthy men, to be numbered on the fingers of one hand, there is nothing done in this line that is not a disgrace. Depraved coarseness, brutality, and sickly elaboration characterise the metal-work on nearly all modern furniture.

It is true that the less Art we intrude into these matters the more regularly will work the capitalist's treadmill; and men will not admit that the use of their own brains is better for them than making money out of other people's; so mechanical reproduction will go on. There will always be a large number of persons, with tastes governed by association, ready to foster and encourage the present condition of things. To such persons, doubtless, these principles must appear stupid and tiresome. But there are others who will recognise the great importance of cultivating the creative faculty, and who will be prepared to endure countless blunders, and much ugliness, when designers begin to use their own faculties more, and lean less on tradition. Certain it will be that, however gruesome their work be, if it is only conscientious it will be interesting and full of life and promise—not, as now, the funeral procession of dead styles.

C. F. A. Voysey.

THE THEORY OF HANGINGS.

Mr. President and Gentlemen,—

WE get the word "hangings," I imagine, from the mediæval house, where the tapestry hung loose from rings and hooks. The present age has curiously transferred the word to the process of pasting paper upon the wall, where it does *not* hang. The word "drapery" probably expresses what we are going to talk about more clearly to many minds: certainly we buy the materials from the draper.

I suppose the use of hangings or drapery may be broadly divided under two heads:—

1. An arrangement for obtaining warmth, or the appearance of warmth. Our mental instincts upon such a subject are quite as strong as our bodily sensations; and if we see a curtain put to a window, we feel that it goes so far towards protecting us from draughts. This must have been especially the case in the old houses hung with tapestry, where even the door was frequently entirely covered. For the most part we distinguish the places we *live in* by draping them, and we produce thereby sensations of comfort and repose.

2. To break and veil the angular and hard lines of architecture, so increasing the æsthetic effect of an interior, and obtaining, at one and the same time, advantages both of form and colour.

Considering the time at my disposal, I think I must exclude anything like a full consideration of tapestry. Manifestly it is only for a privileged class, and it will be more useful to discuss our subject broadly, from the average citizen's point of view. I think we may also clear the ground by dismissing muslins, plain or figured, Swiss lenos, and other such fabrics, as not drapery at all in the true sense, but a mere useless and doubtfully ornamental tag of no moment whatever.

Now fabrics, to conform to the two branches of our theory, must (1) be fairly dense in texture, and in their nature suggestive of warmth and protection, and (2) they must be firm,

not flaccid, and must go into good folds—the character of the folds being a matter of primary importance. The competition of the day, with its frantic haste to produce cheap and novel fabrics for the million, leads to the excessive use of cotton, on account of its cheapness. A cotton fabric does not well conform to the necessities of either branch of our theory; cotton deteriorates most fabrics utterly, and makes one suspicious of the rest. It will be well, therefore, to start at the fountain head, and consider the fibres from which our yarns are made.

I. **Wool** is, of course, the most important. But what ordinarily comes under that name must be broadly divided into two classes:—

(*a*) Goats' hair, camels' hair, and the long wools of Iceland, Russia, England north of the Trent, and, generally, from the colder parts of Europe. This has much the nature of our own hair, is rather straight, and is kept straight during all the manufacturing processes. We then call it "worsted"—and it is interesting to remember that the little town of Worsted in Norfolk obtained its name through the immigrant Flemish spinners and weavers who used these very wools. Goats' hair is quite the most beautiful of all these, and ought really to be in a category to itself. The finest is that of the Syrian goat, which Mr. Holman Hunt has delineated in "The Scapegoat." It is known in trade as "Mohair."

(*b*) Southdown, Saxony, Australian, and other wools from warm climates, which are comparatively short, fine in fibre, and full of wave, and are, for the most part, allowed to wriggle up and felt together, and are spun so; and are then called "woollen."

The "worsted" process produces firmness, crispness, springiness. The "woollen" process produces softness, sense of warmth, flannelliness.

II. **Silk.**—This has, of itself, so little substance, and is so flaccid and springless that, used alone, it must either make a confessedly light and thin fabric, or an exceedingly costly one; but its lustre and texture are so beautiful that it has for long been used as the face of a fabric only, the backing being formed of long-haired wool or linen; and so used there is nothing against it but its cost. Silk, however, must be vigorously divided into two classes:—

(*a*) "Net" silk; being the very threads produced by the silkworm, wound off the cocoons by hand, and afterwards manipulated under the term "thrown." It may give some idea of the fineness of this filament when I tell you that a length of it from London to Edinburgh would go by letterpost for 2*d*.

(*b*) "Spun" silk; threads artificially spun by machinery from imperfect cocoons, where the worm has either died inside, or has eaten its way out. In neither case can the silkworm's thread be wound, and the whole mass—the dead body of the worm included—must be softened and boiled in water, and then pulled out anyhow into a spun thread, from which is produced filoselle, plush, low quality velvet, and other third-rate fabrics. Roughly speaking, such thread is not worth per pound weight more than a fourth part of the silkworm's thread.

III. **Cotton** is treated like long wool, the fibres being kept straight; but from its very nature it is flaccid and lustreless, and though it has certain advantageous qualities, it must always, as a fabric for hangings, hold an exceedingly inferior position. Its chief utility is that of forming a cheap and useful warp (the length-way threads of a fabric), and when kept entirely buried, or at most forming only the backing, it may make good work. Unfortunately, its cheapness tempts the competing manufacturer to use it for weft also (the cross-way threads), when its flaccidity and tendency to crumple and fade quickly come in to ruin the fabric entirely—ruin which has, in my own experience, overwhelmed many beautiful fabrics altogether.

IV. **Linen and Jute.**—From their hard stiffness and entire want of spring, and inevitable tendency to crumple, these hold the same inferior position, though jute has been found competent to produce a fairly respectable velvet.

I must here give a word or two to weaving. Plain weaving of worsted yarns—that is to say, where the threads are over one and under one—produces, in fabrics heavy enough for hangings, stiffness and boardiness. Consequently, anything above the weight of a dress fabric must be twilled or satined or figured; but the more this is kept within proper bounds, the finer the fabric. The temptation of the Jacquard weaver is to gain effect by excessive use of figuring, regardless of the length of the threads which he leaves loose, so that many modern figured fabrics are mere rags. Woollen cloth, on the other hand—a most excellent fabric—is nearly always woven plain, but is afterwards put through a variety of processes which remove its stiffness, and, paradoxical as it may seem, increase its firmness—by felting.

Considerations of Utility.—Cotton, except in three or four shades, and these dyed in a hard and positive way—such as Turkey red and indigo blue—fades much more quickly than wool or silk. Wool receives dye far better, and though many soft tertiary tints fade, the fibre of wool re-dyes advantageously, and any dyeing of wool holds its colour much longer than cotton. Printed surfaces are usually less open to fading from the more genuine manner of proceeding, the mordant required by the printer being a source of security which the dyer mostly escapes. Serges and other soft flannelly fabrics gather dirt much more quickly, and get to look shabby much sooner, than either worsted or wool. I should think jute more likely to be a useful fibre for the purpose we are considering than cotton; but its use for fabrics of good quality is so recent that we scarcely know its capabilities. Most people will only think of it as the material of packing canvas.

NO. 1. COTTON.*

A fine twill, such as is used as a groundwork for embroidery, and about the weight of a good bed-sheet. The poor folds it has assumed would inevitably become much smaller and leaner in a few months. Value, 1½*d.* per square foot.

Decorative Considerations.—I should place any fabric high up in the list of what is desirable if it goes into good folds, this being a consideration of the first importance; colour and pictorial effect, though valuable, standing distinctly second. Here, of course, I cannot omit to say that good Mediæval tapestry must stand immeasurably above all other fabrics; but its costliness alone, not to mention our apparent inability to reproduce it, places it quite out of the reach of all but the very rich. Embroidery, even in crewel, stands much in the same category.

Tapestry and embroidery being beyond our reach, damask weaving, of course, comes to the rescue for the multitude; but the tendency of the day to desire cheap showiness exposes the damask weaver to temptations which are beyond the power of human nature to resist, and

* The illustrations are reduced from photographs of cotton twill, woollen cloth, and goats'-hair "satin," all three of the natural colour, all homogeneous as to warp and weft, and all new material, simply thrown over a rod and allowed to assume such folds as the character of the fibre employed prescribed; a good medium quality in each case.—A. H.

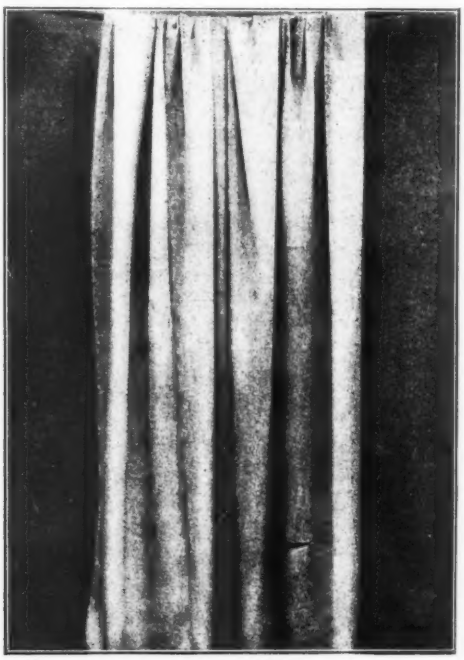
the larger proportion of such fabrics now made at a price to be within the reach of all, are rendered worthless by having only atoms of silk and wool, swamped in a sea of cotton.

Velvet, of course, must take a high place. When one thinks of the velvets of mediæval Genoa or Venice, one is lost in admiration. When one touches some stuff now fashionable in the city, called plushette, one is filled with disgust; still, we cannot help admitting that a French or German worsted velvet, containing a fair proportion of goats' hair, is really a most excellent and most useful, if not a very beautiful, fabric.

As to silk plush, one feels that small quantities of it, used with care and judgment, might

NO. 2. WOOLLEN CLOTH.*

The right weight for hangings, without being lined. This has been put through all the processes usual in the case of "finished" Yorkshire cloth, involving a great deal of felting-up of the fibres. The folds would alter very little, possibly becoming only a trifle flatter, in the course of years. Value, 5*d.* per square foot.



NO. 3. MOHAIR SATIN.*

Made from Syrian goats' hair, a fabric from Bradford. About heavy enough for curtains without lining. The folds here would remain unaltered for a lifetime, and have a brilliant lustre equally permanent. Value, 4*d.* per square foot.

be enjoyable; but that the wholesale use of it in all violent colours, during the last few years, has made it nothing but an eyesore.

Chintzes.—The great facility with which patterns can be printed on cotton and the ease with which a showy result can be obtained at a low price have resulted in chintzes being relegated to the bedroom, at sixpence a yard and upwards, usually on a transparent rag; but there is no reason whatever why chintz printing should not be on close and weighty worsted fabrics (it *is* done to a very small extent), and then the result would rank in the same list with worsted damasks. Here, again, the modern demand for low-priced and showy stuff, even if it be known to be rubbish, has swept a good fabric out of the field. I have before me an old English worsted chintz of about ninety years ago, and by its side a specimen of the stuff sold in fashionable Regent Street shops. The contrast is ludicrous. It is, however, well to remember that the

partly hand-painted chintzes of Lahore of a century ago, though on rather thin cotton, must have been very beautiful; and even now we can occasionally obtain "palampores" from India on a coarse and characteristic native fabric, highly picturesque and full of beautiful colour.

Lining Fabrics, though manifestly of quite subsidiary importance, should follow in texture the rules I have laid down; all the more since a crisp and springy lining may make up for the want of these qualities in a soft silk fabric, which, owing to the importance of the occasion, it may be necessary now and again to accept. Yorkshire tammy and merino, made entirely from long wools, are excellent. French merino, generally used for this purpose, is as bad as possible.

To sum up, I have made here a list of the most available drapery materials, in order of merit and demerit, with patterns laid upon the table, marked with corresponding tickets:—

Good.

1. Old tapestry.
2. Twills, satins, etc., made from long wool, or from goats' hair.
3. Woollen cloth.
4. Silk, damask or plain, if firmly woven, or backed with cross-threads of worsted.
5. Oriental kelims and other tent coverings.
6. Velvet of mohair and wool.
7. Camlet and moreen; and woollen serge, if on a worsted warp.

Bad.

1. Cotton velvet, plain or printed.
2. Low "art" serge on a cotton warp.
3. Soft cotton fabrics generally, whether plain or printed.
4. Silk plush.

I cannot at this point avoid reference to the late Mr. H. H. Mott, who had a true instinct as to the character of fabrics, and of his own ingenuity produced many of great beauty and utility. I also wish to call your attention to the red cloth in which a portion of the French army is dressed—not the superior qualities made for the officers, but the ordinary *habillement des troupes*. Both in colour and fabric it seems to me most excellent.

Next to tapestry, I should almost be inclined to place certain Oriental fabrics, coming to this country under the general name of "kelim," and one from Khiva; these, however, cannot be procured in any quantity. Of course, we might copy them. What we do, unfortunately, is to write out to the East, ordering such things lower and lower in quality, until we arrive at a worthless gauze.

No doubt it will occur to many of you that I have not yet mentioned the important question of what we may call the "character" of a fabric; I mean in respect of a due exhibition of its construction. Any one who gives attention to the subject soon perceives that there is an element of deception and humbug about a fabric whose threads are invisible, where the whole construction is hidden beneath an artificially raised nap, as in cloth for our clothes, or all in a mere fuzzle like a felt. One feels the want of "character." But we have of late years demanded so much *fineness* about our fabrics that "character" has almost of necessity disappeared.

If the application of this view only goes to exclude flannels, felts, fine satins of cotton or silk, and other such featureless and characterless fabrics, one would be glad to see it applied sweepingly all round; but we cannot afford to exclude woollen cloth, which, even for centuries past, has always had a more or less raised or dressed surface, and still, in spite of it, remains in many respects a most excellent fabric. I cannot stop to discuss this; but if we, as con-

sumers, set ourselves to demand cloth which, as they say in Leeds, "shows its bones," we shall get it. In Italy the usual covering of the horse who brings a light cart to market is a pale scarlet cloth, almost entirely without nap; and as facilities for communication improve, no doubt the Italians will bring it to *our* markets.

Use.—As to the fitting use of these fabrics, there is no need to recommend people to buy curtains; that is a foregone conclusion; but a word may be said respecting what is termed a "vallance," which in the hands of most people is simply a snare. No doubt two curtains to a window, when drawn back during the day, without any connecting feature, do often look excessively severe and bare; but good taste will, I think, always come to the rescue in making this otherwise useless and solely æsthetic feature, a vallance, moderate, both in style and dimensions. But curtains, however ornamental in adding to the pleasing form and colour of a room, too often all come at one end or one side; and if they are in contrast of colour to the wall, care should be taken to carry their form and colour to the other sides if possible. And here the portière, which has also the advantage of appearing to be a shield from draughts, comes in most usefully. A drapery to an overmantel might, I think, be equally comely and advantageous. But the housewife's horror of dust seems generally a complete bar to the use of wall draperies hanging in folds. When I have seen them so used, I think they have been always picturesque and comfortable-looking; and I am satisfied that such draperies do not gather dust in anything approaching the degree in which window-curtains do. Draughts come through window-sashes, bringing dust with them, but no draught comes through a wall. In rooms where bareness and a mechanical hardness have been a prominent feature, I have seen a dado of mohair velvet, about three feet high, used with most excellent result. This, hung loose by rings on studs, from a moulded dado-rail, and divided up into shortish lengths, answering to the breaks in the wall, is easy to remove and shake; and the housewife's watchfulness about dust has been cajoled for the moment.

But it is for the sanctuaries of churches that I would mainly plead for more hangings. The objection generally taken is that such work is not permanent, would be a care, would require replacement, &c., all which, it may be remarked, applies in even a still greater degree to altar-cloths and vestments, which are not thereby prohibited. The cloth sanctuary-hangings of St. Alban's Church, Holborn, have been above twenty years in use, and were still quite good when last I saw them; and if architects would specify such hangings with as much care, as to the quality and material to be employed, as they take with regard to the brick, stone, or slate of the fabric, there is no reason why they should not last fifty years, by which time even wooden benches, hot-water pipes, and lead lattices usually want a good overhauling.

A large proportion of the lower part of a sanctuary is nearly always hard, bare, and featureless; and not only will hangings bring in colour and softness and variety of form, which are, beyond anything, desirable, but they add a sense of the Presence Chamber being furnished and cared for, which I firmly believe no carving and painting at ten times the cost can ever do half so well.

ALDAM HEATON.

CHURCH FURNITURE.

MR. PRESIDENT AND GENTLEMEN,—

THE Art Committee had hoped to afford you the opportunity of listening to a Paper from an expert designer in this important branch of a very important Art, allied to Architecture; but we have been disappointed in that hope. It has thus fallen to me—rather than leave the subject altogether untouched—to suggest it to you as one worthy of discussion and attention, though I cannot pretend to offer you more than a few cursory ideas upon it.

Recipes for design are never to be encouraged—I, at least, could never claim to prescribe them. What follows will have a general rather than specific bearing; frankly negative, perhaps, rather than positive. The object, as I understand it, of the Papers read before these Meetings is to encourage free discussion and the consideration of our selected subjects from every point of view, not excluding those the most divergent. As artists in conclave for our mutual benefit, we shall surely never lose by being frank in laying bare our views before one another for criticism or endorsement; just as we, in the exercise of our livelihood, take down—with wondrous fearlessness sometimes—the hoardings from our constructed works, and expose these to our brethren and to the world at large.

The history of ancient ecclesiastical art in all its branches has become one of the commonplaces of an architect's acquirements, and I pass it by at once to consider the demand upon us—a very right and proper demand—to be constructive workers and designers, to supply the needs of the time, just as the ancient craftsmen did in their respective generations. Yet a glance at the history of our own time, in this branch of art, is well worthy our earnest attention, because it can teach us more adequately than any other means how *not* to design or procure Church Furniture. If we have brought ourselves to know thoroughly how not to do a thing, we may, I think, be said to have advanced no small distance in the direction of doing it aright, and at least of putting some of the right spirit into it. In all matters of constructive design, no one questions that it is only given to a few fortunately endowed artists to succeed perfectly; those, however, who have by patience and study acquired good taste and appreciations need never fail—even when the celestial fire is absent—in doing good, sound, and sometimes fine work. This is the consolation of most of us.

To our great happiness, the fierce battle of the styles has ceased to rage; the fighting spirits are assuaged—some of them have even transferred their allegiance. Far be it from me to venture, in these more than ever eclectic days, to assert a preference for any style. Indeed, I am firmly convinced that style is but a clothing, immaterial as compared with the essential idea the artist has to express. Yet it has been decreed for us, by powers beyond our control—no matter what we architects may wish or say—that, as regards new constructions, Victorian England is, in the main, to worship in buildings whose *argot* consists of pointed arches, some trefoils or quatrefoils, or, maybe, a galaxy of lacquered brasswork and an emphasis of stopped chamfers. Such are not unfrequently known as Gothic architecture.

Let me not for a moment be understood to breathe a word of calumny or reflection against the vast amount of very beautiful work which the Gothic revival has produced in the hands of its best exponents. Nor would I detract in the slightest degree from the singular and searching effect which the enthusiastic study of our glorious ancient examples—by those who have understood them—has had upon modern architectural design. Yet the architectural history of our own times informs us that apart from the few brilliant spirits whose natures have been fanned by the flame, who have produced work which will live for the future, just as the old work which we reverence lives now for us—despite these instances, the seed has, in most cases, fallen upon cold and barren ground. Our country, more especially in its cities, is weighted with numerous edifices, dedicated, indeed, to worship, but wholly unworthy of that service, which have ignorance and ill-taste written upon every line of them—the worst buildings, as a class, I believe, which have ever, in the world's history, been reared in the name of the first of the arts.

It is a curious fact, but sad matter for contemplation—philosophically explicable, no doubt—that bad design, attached to Gothic forms, invariably results in what only one word, and that a slang one, adequately expresses—"shoddy." In nothing is this more apparent than in designs for Church Furniture. Now I should say that those—be they men or men's

wives and daughters—who have the control of taste in our churches and chapels are as much or more to blame than the architects for the state of things we find too often in the equipment of these sanctuaries. Romanticism and the revival of Ecclesiology created a great demand, and, not unnaturally, in these commercial days a lucrative trade sprang up to meet it—that which calls itself the Ecclesiastical "Art"-furniture Manufacture. What a tradesman's Lorelei is this new adjective "Art"! How simple and convenient, whether to parson or donor or architect! *Art* altar rails at so much a foot, as per catalogue! *Art* pulpits in any style in stone or wood, ready for the choosing! *Art* stop-chamfers galore, so "Gothic" and seductive, so simple, and withal so cheap! Far and wide do we find these wares: the "Gothic" font, the "Gothic" credence, the "Gothic" lectern, the "Gothic" embroideries, saddest of all—speckled daisies, Maltese crosses, garish orphreys, fleur-de-lys powderings, and lilies growing in gigantic cross-stitch! Who has not beheld these, incipient on canvas, complete on pulpit, altar, floor, and window? Who has not often had occasion to grieve over the wasted devotion—wasted for lack of guidance—upon poor and ignorant designs, called "Ecclesiastical," and accepted by the faithful, through this trade passport?

I am not attaching blame to these manufacturers—far from it. It is the duty of every commercial man or company to make money out of legitimate business. I do call in question the good taste, as well as the wisdom, of those—be they architect or priest or minister—who accept these things without protest, and who recommend or use them habitually in the service of the sanctuary; emblems, no doubt, of the faith, but as works of devotional art, compared with the great works of our forefathers, to whom these very workers look, or pretend to look, for example, as a barrel-organ to the King of instruments.

Now I would in no sense wish to undervalue that spirit of devotion which has spent itself so laudably upon the furnishing of our places of worship. What we most desire is that it should have the right inspiration and direction; and who better to supply this influence than the master-designer of the whole edifice? Let it be borne in mind that articles of church furniture are not to be dealt with just as the ordinary furniture of our houses. In most instances they are essentials of the structure, often large enough—as in the cases of the organ, the reredos, or the screen—to do much to make or mar it. It seems to me, therefore, to be the bounden duty of every architect who undertakes the building of a new, or repairing of an old, church to master every detail of its requirements, and, so far as he can, to direct the choice of every accessory, even if he does not himself do all the designing; and when there are reasons why he does not make every design, he should see that a better artist than himself in any particular branch assists him in realising a complete conception. We have before us noble examples of success, where, as at Truro, every accessory, down to the altar plate, came from the same hand; and at Holy Trinity, Sloane Square, where another master mind guided his own work and that of other artists and craftsmen, and brought the whole result into harmony. It may be well for us to remember, in this connection, that there are already among us genuine craftsmen, whom we may with great advantage call to our aid in dealing with the arts called "applied," though the supervision should never pass from the architect himself.

It may be said—and I admit its full significance—that the architect often has no chance, and is not consulted in what are considered the minor matters of Furniture, as, for instance, hangings, brass-work, or embroideries; worst hap of all, when an organ is introduced, either into an old church without a competent designer being consulted, or into a new one with the same omission, as often occurs some time after its completion. But, whatever may be said about the old church, an architect need have no false modesty in endeavouring to secure unity of design throughout his new creation. Tact will help him much in gaining so good an end. This I say, though deprecating most strongly any undue forwardness or appearance

of pushing his art into a trade. Let us be confident of this, that if we make all our designs, for old or new, beautiful, and show ourselves efficient, both clergy and laity will, in the long run, give us due recognition; and in this sense the matter is largely in our own hands.

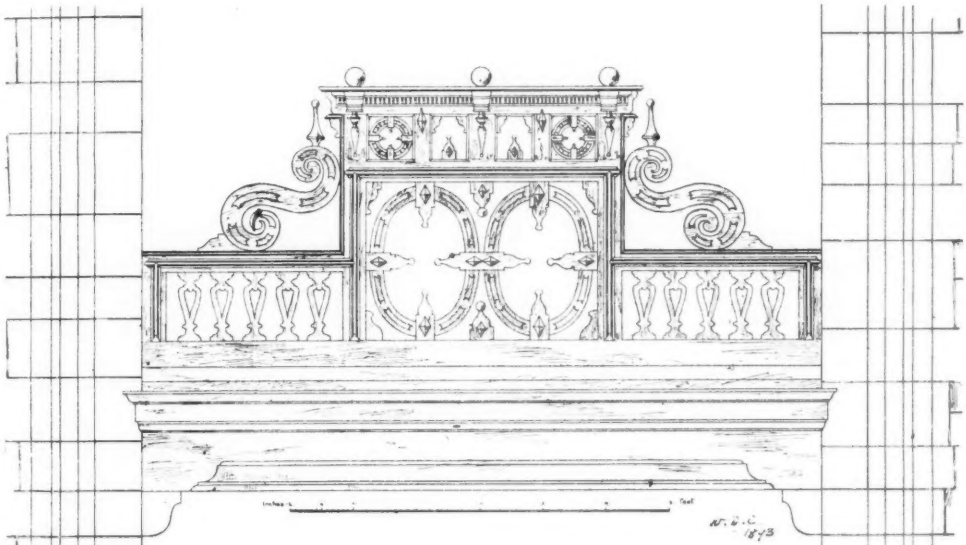
So far, I have dealt generally with the architect's position and obligations. A few words as to the object of his work. In dealing with woodwork, let me express my unqualified horror of that typical speciality of the pseudo-Gothic I have characterised—pitch pine, which meets us in all its varnished vulgarity in so many a "Gothic" railway-station, and ruined, because "restored," church (restored in its inverted comma sense, of course). If economy and the size of scantlings demand its use in roofs, then let us leave it untouched, unvarnished; for thus is its grossness of grain lost in a tender tone which a few years' exposure gives it. If the same considerations demand its use in seats and fittings, and the prejudices of the local doctor cry aloud for varnish, I can only offer my sympathy and the suggestion of stain. Considering the attempted slavish reproduction of old work which marked the early days of the Gothic revival, this prevalence of pitch pine, a wood entirely unknown to our forefathers, presents a curious problem. So wellnigh invariable has it become that I have even heard a high dignitary of the Church doubting the claim of a Gothic edifice, which discarded it, to the title. But finally, in this connection, I venture to commend my own rule. If pitch pine must be used, do not varnish it; if it must be varnished, stain it; but, best of all, have nothing to do with it.

Purity of style has been much written and spoken about, and I, for one, thoroughly believe in it as an education for the student who has yet to develop his individuality. There is no art in which scholarship has greater claims upon us than architecture. We have, indeed, the centuries to range over, and lessons to learn from each and all of them. Wherever his inspiration is gleaned the scholarly artist will produce a harmony; his insight will grasp the same harmonies in the apparently most divergent forms or styles. Nothing is more remarkable than the unity produced by the architecture of widely different dates when founded upon the same dominating principles. It is with this broader view before us that we are every day more and more convinced of the mistaken purism practised by many of the early revivalists and restorers, who too often narrowed their own new buildings to hardness and insipidity, and robbed the old ones entrusted to them of so much of their varied charm, all in search of a fancied period and a studied correctness.

Early English and Geometrical woodwork, as handed down to us, has never seemed to me much worth our study except from the archæological standpoint. Modern wood design in these styles must be confessed, in the majority of instances, to be a total failure. For appropriateness and fitness to the material, even Winchester stalls, fine as they are, must give way to those glorious examples of a later period, some of which are to be found in Langton's chantry and the Lady-chapel of the same cathedral. It is a special quality of this later work that, with all its richness and wealth of ornament, it is yet in perfect harmony with the severest mediæval surroundings, because the same inherent principles are to be discovered in both, widely differing though they may be in form and expression.

Nothing, to my mind, can be more harmonious or beautiful than much of the woodwork, whether of Germany, France, or England, in which one finds the Renascence detail grafted upon the Gothic idea, work agreeably characterised as "debased" by the revivalists. The stalls of Saint-Denis, of Cartmel, of King's College Cambridge, and of Henry VII.'s Chapel at Westminster; the woodwork of Leeds; innumerable German and Flemish examples—what a charm they possess! Sir Frederic Leighton has very justly animadverted upon the lack of restraint we find in so much of the later German woodwork. Yet he has acknowledged its exuberant and ever fresh fancy. It is well, in learning from it, to

note that even when over-extravagant and over-elaborate, as it so often is, it is always, essentially of wood—wooden; expressive of the capabilities, and recognising the limitations, of the material. As we pass on to the more definite work of the Renascence, the *Cinque Cento* and even later woodwork of the Italian churches has much to tell us that is in perfect harmony with Gothic forms as expressed in modern design. What a field we have for study in French and Flemish design of the sixteenth and seventeenth centuries! I am not advocating a *pot pourri* of selected bits from indiscriminate sources, but a wider tolerance and more extended scholarship, which, basing itself, as all successful architecture has ever done, upon what has gone before, may produce a whole at once expressive of the best



JACOBEAN BALUSTRADE TO RINGING GALLERY, ST. WILFRID AND ST. MARY, MOBBERLEY, CHESHIRE.
Found in fragments, put together, and replaced in original position.

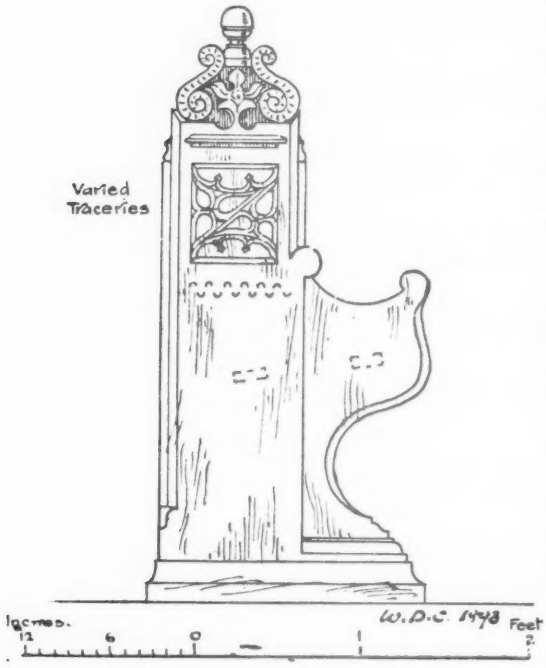
taste and needs of the day, in sympathy with the modern demand made upon us for Gothic architecture in Church uses.

I show you a few English examples of "debased" work, not because they possess any conspicuous merit, or are other than the simple and somewhat rough productions of the provincial craftsman. But they illustrate a period which seems to me deserving of consideration, as possessing both spirit and appropriateness, but which nevertheless fared ill at the hands of our early purists, to our assured loss. Whatever just criticisms you may pass upon its detail, the effect of the Mobberley balustrade, with its open work framed in a pointed arch, and with a fine perpendicular west window of the Tower shining through it, adds no little to the charm of that remarkable church of many centuries, with which it is in perfect harmony.

Time does not permit me to discuss in separate detail the various items of church furniture, which will constantly demand the attention of the conscientious architect. I will only briefly deal with the one that is ever recurring, the largest and most difficult, too often our white elephant—the one, withal, which is peculiarly full of great opportunities for the exercise

of skill in planning and arrangement, proportion in design, and beauty and intricacy in detail.

It is remarkable that the modern builders of Organs, with one or two notable exceptions, have failed so completely to recognise their responsibilities and opportunities in respect to the external appearance and fitness of their work. It is no exaggeration to say that, when let loose in a church, the organ builder, speaking generically, is the veritable bull in a china shop. For no antiquity, for no beauty, has he any reverence or respect. They are reserved for his 16- or 32-foot pipes. If he adds a case to his instrument, he drags out a stock pattern, stop-chamfered Gothic, "*very Early*," of the first quality. This, perhaps, he ornaments with some gilt-tipped ironwork, bedizened red and blue, which seems to have had its origin in Coventry; metaphorically, perhaps, its most appropriate destination. At stencilling in varied coloured designs of the fleur-de-lys order, he has no rival. He contemplates his organ only as a huge square or oblong windbox, and this, although he has numerous modern mechanical inventions at his disposal which make it pliable and manageable in an extraordinary degree—methods unknown to our predecessors who turned out those grand combinations and designs, so instructive for our study. Here, indeed, is a field for the architect who enjoys openings for endless possibilities, a field which has been strangely neglected. There is none more seductive or more charming. True that it is full of technicalities and limitations which cross our path frequently; but the genial and accommodating organ-builder—when we are fortunate enough to find him—can help us to a remarkable degree. At its worst, the subject is one which common sense, application, and tactful insistence can easily master. There is no attribute of the service demanding more earnest attention from all who have to deal with churches. The organs which have been permitted to disfigure some of the finest monuments in the country are, and will remain until remodelled, a disgrace, so far as their appearance is concerned, to the revival of church activity.



BENCH ENDS, ST. WILFRID AND ST. MARY, MOBBERLEY, CHESHIRE.

It is not only a question of the organ case to which I am referring. I know that funds often fail us to provide this. Sometimes it can never be added for this want. But the position, arrangement, and massing of the parts of the instrument itself are of first importance. If well done, the organ left only in skeleton can be made a fine object, and need never be an unsightly one while its grouped towers of pipes are awaiting their clothing. In designing a new church, not only should the position and magnitude of the instrument be determined at the outset, but in all cases should its grouping and case appear upon the original drawings, being fully as important in effect as any other portion of the structure.

I must leave untouched the tempting themes of the reredos, the altar and its accessories, the pavement, the stalls and seats, the pulpit, the faldstool, the lectern, the font, the ewer, the alms-box, the screens, the lamps and metal-work in all its variety, the hangings and embroideries, the books, and the many accessories of the vestry. Each and all demand our careful study and attention, and the Art Committee have brought together for our inspection a few varied examples.

In conclusion, I would only say I have confined myself to the consideration, mainly, of things Gothic, or allied to it, for the reasons stated at the beginning of this Paper. A wider scope had suggested itself, but, delighting as I do in Gothic design, I have no intention of wantonly combating the widespread ecclesiastical doctrine that it alone is fitted to modern needs in church use. Those who are prepared to assert or accept this doctrine should fix in their minds the oft-proved truth, that the reproduction of forms, called Gothic, does not necessarily lead to the production of Gothic architecture or furniture. On the other hand, whatever form our work may take, it can only gain by the beneficent influence of genuine and well-mastered Gothic principles. And however we clothe it, let us at least see that our architecture is always progressive. The mere imitative faculty can never produce living, successful, or characteristic design.

W. D. Caröe.

DISCUSSION OF THE FOREGOING PAPERS.

Mr. L. ALMA TADEMA, R.A., F.S.A. [*H.A.*], said it was his good fortune to have been asked to propose a vote of thanks to the authors of the admirable Papers they had listened to. He remembered that, years ago, in a biographic sketch of which he was the subject, a learned art-critic lamented that he bestowed so much trouble on cabbages and furniture in his pictures. He had borne that in mind; but he had not changed his style. He was still fond of furniture, and was very proud that he should have been asked to say a word on that very important subject. Beautiful as architecture was, to live in houses perfectly bare would not suit anyone. They required something to sit upon; something to eat from, to read from, to study from—something to put their things away in. In listening to the Papers he had been struck with one notion, which had raised in his mind a doubt as to how far they were entitled to underrate the value of the efforts of their own day. He was, above all, though a lover of antiquity, a child of the nineteenth century; and one could not but admit that art was principally tradition. If Byzantine architecture existed, it was because Roman architecture preceded it; when the monks of the eleventh, twelfth, and thirteenth centuries built their churches and monasteries, they built in sincerity according to Roman principles. So it was in the sixteenth century, when there was a revival in architecture—men believed that they were imitating Roman principles, and built accordingly. Therefore they must not be hard upon those who preferred one style of days-gone-by to another. The Gothic building of 1825—well, it had the stamp of 1825 upon it, and so it would be for all time. They must apply to their wants a feeling of the art which had gone before. No style could be invented; a style could only be developed from what they had seen. The present was a period of civilisation which embraced periods long past. They were no longer one-sided, as in the Middle Ages, when one sentiment alone prevailed. Now, everybody was free to think as he liked, and that accounted for the great diversity of expression in the work of the day. Archæology, a learned professor of history had remarked to him thirty years ago, was the handmaiden of Science; she was also, if he might say so, the handmaiden, or even the teacher, of Art. In the development of the history of furniture, the most primitive seat, the oldest seat, was the Egyptian, and that was hollow—very comfortable to sit upon, but specially so because it was a low seat. The Oriental squatted on his heels; he (the speaker) knew by experience that no European could so seat himself, because in painting an Egyptian picture he had been unable to find a European model to squat as the Orientals did. Later on, the Greeks and Babylonians sat higher; they used a square seat. Then came the Romans, who kept to the square seat, which had come down to modern times, until the Americans invented the rocking-chair; and since then they had arrived at the comfortable slanting seat of the present day. So it went on from one to another, and new forms would ever be invented; but they must be rational. As Mr. Belcher had rightly said, there must be no ornamentation in the wrong place. This he knew by experience. His friends had brought him from Germany a beautifully carved chair, with a very finely carved head of a knight right in the very centre of the back, and

if one unfortunately dropped into it, one had occasion to remember it for hours. That kind of thing was of no use; it was not original, it was simply absurd. Certainly the period of the finest furniture was that of Chippendale and Sheraton. One armchair he knew of—one he was always loth to leave—a typical last-century production that fitted every part of the body. He was a clever architect who designed that chair; he might have gone under the name of upholsterer, but he must have been an architect who constructed it in that fashion. Architects must supply us with houses—but with comfortable houses; with churches—if he might venture to say so, with comfortable churches. He meant churches in which they could feel at home, in which they could feel what they were there for—not naked walls and roofs. It was perhaps the highest expression of the need of furniture where it was most felt.

LORD EGERTON OF TATTON, who seconded the vote of thanks, said he had had the opportunity of seeing furniture in most parts of Europe and the East, and he could confirm what had been so well said by Mr. Alma Tadema, that some of the oldest seats in the world were the most comfortable. He lately had had the opportunity of sitting in the marble seats of the ancient theatre at Athens, where the name of the high priest might still be seen affixed to the seat; and it struck him that many of the seats in their own churches were not half so comfortable. Therefore they might learn a good deal from the ancients, and from all parts of the world, with regard to comfort in furniture. In the present day, every sort of furniture was imitated; one of the last crazes was to imitate everything Japanese. The Japanese were wonderfully clever people, and especially clever in decoration, and we owed a great deal to them in the latter respect. We should, however, at the same time, imitate some of the fine specimens of furniture in different parts of Europe, and especially in Italy. The carvings in the stalls of some of the churches, and work of the kind in other buildings in Italy, were worthy of the greatest attention; and the Italian Government recently had done wisely in issuing a publication at a cheap rate, which gave full-size working drawings of the most celebrated specimens of architectural furniture, and everything connected with architecture—whether tile or wall, decoration or furniture—so that they could be accurately copied. The title of the work was *L'Arte Italiana*, and it was issued monthy at the price of three shillings a copy, he believed. He thought it was a work which would be very useful to architects and to decorators in England. The Papers traversed such a wide field, it would be difficult to sum up in a few words anything with regard to them. The remarks about good hangings and bad hangings struck him as very valuable and accurate criticism. They could hardly go back to a better and more cheerful type of decoration than might still be found in many old country houses—fine ornamental work of the last century, such as the author of the Paper had exhibited—the old-fashioned Chinese or Indian chintzes. There was nothing more striking than some of the rude materials in carpets and hangings to be found all over the East, containing patterns and designs and colours which had been handed down from remote ages, among people who were not highly cultivated or highly educated, but who, under a warm and bright sky, seemed to be susceptible of taking in forms pleasant to the eye, and grouping them with a sort of intuitive skill which some of the greatest decorators of modern days could not surpass.

MR. LEES KNOWLES, M.P. (West Salford), said there was one point in the second Paper which interested him very much, the allusion made by the author to Rhea grass. He believed there was a great future for that material. The difficulty, however, seemed to be to find some cheap method of separating the fibres, because of the gum which stuck them together. Then there was a difficulty in the length of the staple, which was too long for spinning in ordinary Lancashire mills. He had seen the material before and after it was spun and woven, and it struck him as exceedingly nice and serviceable, and it possessed a toughness which would satisfy, he thought, the author of the Paper, who had alluded to this grass. With respect to Mr. Caröe's Paper, he thought that the clergy at the present day had almost too much power, if he might use that expression, with regard to their churches. In the restoration of a church, it often happened that not merely the rectorial taste, but the tastes of the rector's sisters and cousins and aunts had to be consulted. It seemed to him that one man ought not to have the power of "restoring"—using the word, as Mr. Caröe had used it, in its inverted-comma sense—a church and perhaps destroying features which had accumulated for centuries. That was the point to which he particularly wished to call the attention of the Institute—namely, the "one man one vote" principle with regard to churches and chapels. He thought it was a subject that was well worth their consideration. As a member of the outside public, he wished to express his appreciation of the work which was being done by the Institute.

MR. WILLIAM WOODWARD [*A.*] feared that what he had to say might probably be distasteful to some present, because his words would be confined to matters purely architectural. He yielded to no one in that room for intense admiration of the perfect finish of a building in every particular. One must, however, distinguish between architectural finishing of the house and the furniture. He sat in an easy-chair—a very easy chair—and spent a great many hours in it; but that chair was not designed by an architect. It was designed by

an artistic craftsman, if he might call him so. His opinion was that if—and he wished to emphasise the word "if"—if the architect carried out his duty to his client and his duty to himself, it would be utterly impossible for him to devote any time to designing chairs, wall-papers, or wall-hangings. Furniture, in the nature of a chair or a table, was not within the proper sphere of an architect's duties. He would conclude his remarks by saying that, with his mind filled with the productions of Belgium and Italy, he came there to look at the drawings of their modern architects. If gentlemen present would look at the work, both in design and execution, from Sainte-Croix, and then turn their attention to the paltry, weak, and effeminate designs upon the screens, they would be enabled to distinguish between the works of men who executed those works, who were not architects, but who were artist-craftsmen; and would appreciate the difference between an architect who wasted his time and his client's money designing furniture, and the craftsmen who had produced the great works that they saw, for example, at Sainte-Croix. If the young gentlemen who interrupted wished for a lesson in drawing, he would invite their attention to the magnificent sketches by Augustus Welby Pugin on the wall.

Mr. JOHN BELCHER [*F.*], as the introducer of the subject, thanked the Meeting for the way the Papers had been received. As far as possible the Art Committee had endeavoured to choose subjects for the Meeting which should be helpful to architects in their work, and they had endeavoured, as far as possible, to broaden and widen the views of the architect, and to keep his nose a little bit out of drains, and traps, and sanitary matters—that he might, as far as possible, exercise himself in those things which had an intimate relation to his own work, even if he did not design them. He was afraid he, for one, must plead guilty to having designed furniture, wall-papers, curtains, and materials. He did not know that he had sat in his easy-chair quite so long as Mr. Woodward, but if the Papers had been of any value they felt that the subject was so large that they were unable to particularise as much as they might; and probably, on some future occasion, they would be able to take up the subject separately, and deal with ecclesiastical furniture and fittings and stuffs at separate meetings. If they had done nothing else, they had elicited some valuable remarks from Mr. Alma Tadema, and he should like also to say that their thanks were specially due to Mr. Caröe, who had taken a large amount of trouble in the matter, and had collected the various drawings, many of which, he was sure, if they closely inspected them, they would find exceedingly interesting and valuable.

Mr. JOHN CLAYTON said he had come to the Meeting not to speak, but to listen and learn. He was, however, tempted, on the mention of the name of Augustus W. Pugin, in connection with the designing of furniture, to refer, from personal knowledge of him, to his facility in designing such work. He delighted to deal with fabrics, decoration, carvings, all kinds of metal-work—every item, in fact, that a building needed. Pugin's architecture was, he thought, none the worse for his practice in such direction. Speaking as one who had been engaged in architecture as well as painting and sculpture, he would venture—from behind the scenes, as it were—to express his regret, not that architects did so much in this way, but that they did so little. It would be better for all the arts if they were less divorced than they now are. If architects would not so exclusively confine themselves to the T-square and compass, they would have deeper and wider sympathy with the other arts, and better know how to apply them to the enhancement of their own work than is now generally the case.

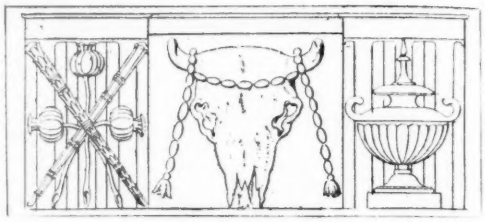
Mr. J. D. CRACE [*H.A.*] said at that late hour it would be hardly fitting to take up the time of the Meeting by saying anything on the subject of furniture in general; but, inasmuch as the Committee who had had to do with the Papers had succeeded in bringing together a large number of extremely interesting drawings by many men of ability, it would be, he thought, a great pity that they should be immediately dispersed, and he would venture to appeal to the Council and to the gentlemen who had lent their drawings to permit them to remain on the walls for at least another day, so that those who were interested in the subject might have some opportunity of examining them with a little more care than was possible at a crowded Meeting. He should like to call attention to a little contribution that he himself had been able to make from the drawings of Pugin. As a boy he had seen him design frequently, and was familiar with his personality and with the extraordinary rapidity and practical aptitude with which he designed whatever he turned his hand to. The care with which he made himself acquainted with all the structural requirements of what he attempted to design would be apparent in the little sheets of paper on the screen, each of which contained an almost complete design for a piece of furniture, and some for two. Among the ten sheets of drawings exhibited, none of them bigger than a half-sheet of cartridge-paper, there were only two or three which were together concerned with one piece of furniture. All the rest contained a complete thing in one sheet; not only the complete thing in point of ornament or design, but all the structural portions were explained and set out in such a way that an intelligent person, accustomed to work of the character portrayed, would have no difficulty in carrying it out—in fact, they had all been executed.

M. AUMONIER said there was one thing in the Paper read by Mr. Voysey which he should

like to say something about. He had understood Mr. Voysey to say that they should discard tradition. Now, he would ask them, as architects, men of culture and refinement, whether all great Art had not been carried on on the lines of tradition. Then why go back to crude work of the kind exhibited in the Arts and Crafts Exhibition last summer. If they looked at the matter from a common-sense point of view there was no particular reason to go back to the very beginning of art, when a carpenter only knew how to make a rabbit-hutch, or a kitchen chair with rockers, which were the kind of things glorified at the Arts and Crafts Exhibition. He wanted to know whether it was not better to work on the grand old traditions of Art, and he thought, as Mr. Alma Tadema had said, it would take modern designers some time before they could design a chair better than Chippendale, or design any kind of furniture more fitting to its use than Chippendale did. Was it better to discard tradition altogether? He thought not.

THE PRESIDENT thought there was an undue tendency on the part of some of those who occupied the position of clients to put down the members of their profession as a sort of superior bricklayer or carpenter, whose competency to advise on such subjects as decoration or of furniture, far less to design them, was a thing out of the question. He thought it extremely desirable that the mind which had educed the forms and proportions of a building should have something to do with the decoration, and even with the furnishing, of that building. Nothing was so discordant to one's feelings as to enter a house one had taken some trouble to design, and to find it utterly ruined by the decorations and the furniture. Those architects who had found time not merely to design architecture, but subjects cognate to architecture, such as decoration and furniture, had properly given their attention to designing whatever might be found to have direct or indirect relation to their buildings. A vote of thanks had been proposed and seconded to the gentlemen who had been kind enough to contribute the Papers which had been read, and he thought they would wish to couple with that a vote of thanks to the various private individuals and public authorities who had contributed the many beautiful illustrations and drawings which hung upon the walls.

*** The Institute is specially indebted to the authorities of the South Kensington Museum for the large number of framed drawings and photographs of tapestries lent by them for the occasion; and to Mr. J. L. Pearson, R.A., Mr. R. Norman Shaw, R.A., Mr. J. D. Crace, Mr. Aldam Heaton, Mr. W. Romaine-Walker, Mr. J. Brooks, Mr. C. Krall, Mr. Walter K. Shirley, Mr. C. F. A. Voysey, and Mr. G. F. Bodley, A.R.A. A description of some of the drawings and other exhibits will be found on page 438.



CHRONICLE.

LONDON STREETS AND BUILDINGS BILL.

Amendments made by the London County Council.

The London County Council having at a recent meeting decided on the amendments they would adopt in the draft Bill, and sent to the Institute a copy of the Bill with such amendments, they have been considered by Mr. Arthur Cates, Mr. Edwin T. Hall, and Mr. Rickman, the Delegates of the Institute Council, who attended at Spring Gardens; and they report that about sixty in number of the technical amendments which they submitted to the L.C.C. Building Act Committee at that conference have been adopted, though not those touching the new principles raised in Parts I. and IV., nor are definitions, &c., satisfactorily dealt with.

Among the more important items accepted the Delegates mention the following:

Those which remove all questions as to openings in walls for shops, the walls in which they occur being treated as starting from the top of the bressummer as the base.

Clause 43, relating to scantlings for joists of floor, has been struck out.

In clause 48 the storeys in roof are limited to two, any of which more than 60 feet above the street shall be constructed of fire-resisting materials.

In Clause 52 a definition of low pressure has been introduced.

In Clause 55 the retrospective action of subclause 2 has been removed, but the excessive minimum height of 8 feet 6 inches for habitable rooms is maintained.

Clause 57: Enclosure of lift, has been entirely struck out, although the Delegates' objections applied only to cases when lifts are formed in the wells of staircases.

In Clause 75 the new proposal for settlement of differences as to party walls by two surveyors or their umpire has been struck out, and the present system of three surveyors restored, and extended to "enable them to deal with differences from time "to time."

In Part VIII., Dangerous Structures, the power of the District Surveyor to certify the actual condition of the building has been extended.

In Part XIV., Clause 139, power is given to the Magistrate to call in technical assessors to assist him.

In Clause 185 (27A) "cubical extent," which is

now used in place of "cubical content," is defined to mean "the space contained within the external "surface of its walls and roof and the upper "surface of the floor of its lowest storey"; consequent on this change the cubical content of 216,000 feet is altered to cubical extent of 250,000 feet; otherwise, the definitions in Clause 185 remain generally unaltered, and it is understood that they are still under consideration.

As regards Parts I. and IV. the principles on which they were founded, and to which objection is taken, are maintained unchanged.

Some slight variations have been made in Part I., and clauses have been introduced professing to be saving for buildings on old sites and domestic buildings re-erected in a narrow street, which appear practically to result in the restriction that a re-erected building shall, under certain circumstances, "be in no part of a greater height "than the previously existing building or struc-"ture," or be set back 20 feet from the centre of the roadway, or if over 40 feet high be set back half its height from the centre of the roadway.

In Part II. Clause 15 has been so far modified as not to apply to any building erected on land previously to the Act *wholly* occupied by a building, provided that no part of such new building shall be of greater height than the previously existing building. This word "wholly" appears to take away the value of the apparent concession.

In Part IV. new clauses have been substituted for Clauses 29, 30, 31, 32 and 33, by which the limiting angle of 45 degrees is professedly restricted to new domestic buildings in new streets; but the words would be applicable to any re-formation of streets on old sites in London, which would be objectionable, and for such buildings in old streets the height is limited to twice the distance across the open space in the rear. The requirement of the open space on the ground floor in the rear is maintained, and even with the modification in favour of buildings in old streets these new clauses appear hardly less objectionable than those for which they are substituted, and are evidently drawn with the view to keep new buildings down to heights limited by that of the former buildings, and considerations of air space assumed to be necessary.

Thus the Bill, even as amended, remains in a crude and unsatisfactory form; and only after it has been dealt with before the Committee of the House of Commons, which will meet on Monday next, 30th inst., to consider it, and after the Bill has been reprinted as a whole, will its full scope be appreciated.

Mr. Edwin T. Hall has prepared an elaborate analysis of the Bill as now amended, which will be available in any further action.

The Appellate Tribunal.

Mr. Arthur Cates, as representative of the Institute on the Tribunal of Appeal constituted under the provisions of the London Council General Powers Act 1890, reports that during the year 1893-94 eleven appeals have been heard and decided by the Tribunal, of which he is the elected Chairman. Some of these have been cases of great public importance, and argued before the Tribunal by counsel of eminence. In the result the certificate of the Superintending Architect was confirmed in eight cases and varied in three. In June 1893 a question affecting the constitution of the Tribunal was raised by an application to the Queen's Bench Division by a Mr. Ellis, who had appealed against the Superintending Architect's certificate, asking that the decision of the Tribunal on his appeal should be quashed, on the ground that the member of the Tribunal appointed by the London Council was disqualified from adjudicating in the matter. The case was heard before Mr. Justice Charles and Mr. Justice Wright, who decided that it was against the principles of the administration of justice that Dr. Longstaff, Chairman of the L.C.C. Building Act Committee, who had ordered the prosecution, should also sit as a member of the Tribunal of Appeal, and that the decision was invalid.* Thereupon Dr. Longstaff ceased to be a member of the Tribunal, and the London Council appointed as their representative Mr. Eccleston Gibb, as an independent person not connected with the London Council. Thus reconstituted, Mr. Cates was again elected Chairman.

The late César Daly.

The President, after the General Meeting of the 15th January—when he alluded to the decease of César Daly [*Hon. Corr. M.*], the Royal Gold Medallist of 1892 [p. 183],—wrote a letter to Madame Daly expressive of the regret with which the Institute had received the news of her husband's death, and offering in the name of the Council a tribute of condolence with her and her family under the sad loss they had sustained; and Monsieur Marcel Daly, who accompanied his father during the last two visits he made to this country, has replied as follows:—

Paris, le 15 *Avril* 1894.

Monsieur le Président,—Je viens remplir, au nom de ma famille et au mien, un devoir dont les circonstances seules—une grave maladie qui m'a immobilisé pendant près de trois mois—m'ont obligé de remettre l'accomplissement jusqu'à ce jour, à mon bien vif regret.

Je viens vous prier de recevoir personnellement, monsieur le Président, et de faire agréer aux membres du Conseil de l'Institut, l'expression de notre vive gratitude pour les témoignages de haute considération et de sympathie avec lesquels vous avez accueilli la nouvelle de la mort de mon père, M. César Daly.

Aucun hommage ne pouvait nous être ni plus précieux ni plus sensible que celui de l'Institut royal des Architectes britanniques; aussi tenons-nous à lui en adresser, par votre intermédiaire, l'expression de notre profonde reconnaissance. Veuillez agréer, monsieur le Président, et prier

* For report of this case, see p. 27.

messieurs les membres du Conseil de l'Institut d'agréer également, l'expression de notre très haute considération.

MARCEL DALY.

Communications of a like character have been received in England by personal friends and confrères of the late César Daly from the same writer on behalf of the family and himself.

The late William Haywood [*F.*].

Colonel Haywood, who had been a Fellow of the Institute since 1857, was born in 1821, and received his professional education under the architect and resident surveyor to the St. Katharine's Dock Company, the late George Aitchison, father of Professor Aitchison, A.R.A. [*F.*]. In 1845 he entered the service of the Commission of Sewers of the City of London as Assistant Surveyor, and in the following year was appointed Surveyor, to which the title of Engineer was added in 1853. It is almost impossible to enumerate all the works Colonel Haywood carried out for the Commission; they were not confined only to the City, but were far-reaching and extended all over the metropolis. In 1851, in conjunction with the late Frank Forster, he designed a plan of main drainage and interception of the sewage on the Middlesex side of the Thames; and in 1854 was employed with Sir Joseph (then Mr.) Bazalgette in developing that larger scheme in regard to the High-Level and Middle-Level Sewers which was subsequently carried out by the Metropolitan Board of Works. In 1857 he laid out the City of London Cemetery at Little Ilford, one of the largest in the kingdom. In 1861 he built the Court-house for the Commissioners of Sewers at Guildhall.

While superintending all the arrangements connected with the drainage, paving, and cleansing of the City, Colonel Haywood gradually developed his gigantic scheme for the improvement of the Holborn Valley. This vast undertaking was begun in 1863, and by it an improvement was effected which not only changed two steep hills that had long formed a sore impediment to traffic into a handsome level thoroughfare, but, in combination with a new system of streets, made a large district in the heart of the metropolis for the first time available for important business purposes. The subway system in the work was most completely carried out, effective arrangements being made for the pneumatic tube, for sewers, gas-pipes, water-pipes, and telegraphic wires beneath the roadway. The work was completed in 1869, and opened by the Queen in person in November of that year.

Thirty years ago, it is stated, Colonel Haywood prepared a design for the making of a new thoroughfare from Oxford Street to the Minories. To carry out the scheme at that time it was estimated the work would cost a million of money, and objection was made to the expenditure of so large a sum. Consequently it fell through. To carry out the work at the present time would involve an expenditure of between four and five millions. The abolition of the Coal Dues was deeply regretted by him, for out of these the cost of such great undertakings could be defrayed.

He was the first to lay down asphalte pavements in the carriage-ways of the metropolis. He planned and carried out a complete system of fire hydrants for the City, where it was first established in 1873, and took a conspicuous part in the interminable negotiations with regard to the lighting of the City by electricity. In the construction of underground conveniences, Colonel Haywood showed how sanitation could be promoted at little cost, while the question as to the disposal of refuse was fully overcome by his efforts in the direction of Letts's Wharf. It is stated that during his period of service he carried out improvements in something like half the streets of the City at a cost of several millions, among the more important of these being the construction of Queen Victoria Street and the widening of Ludgate Hill.

Colonel Haywood's reputation was not confined to this country; his name was well known in engineering circles all over Europe, and it is said that few works of importance were carried out in France or Austria without his being consulted. His reports upon matters affecting the health and improvement of the City constitute a small library in themselves, and form valuable records of metropolitan improvements, the removal of snow, questions affecting asphalte and wood pavements, sewage operations, water-supply, railway projects, traffic arrangements, cleansing, lighting, and numerous other matters bound up with the health, comfort, and convenience of the citizens.

He passed through all the grades of the London Rifle Brigade, of which regiment he became lieutenant-colonel in 1876, retiring in 1881. He was a Member of the Institution of Civil Engineers and of the Surveyors' Institution, one of Her Majesty's Lieutenants for the City, a Chevalier of the Legion of Honour, a Knight of the Ernestine House Order, a Commander of the Portuguese Royal Military Order of Christ, and an Officer of the Order of Leopold of Belgium. Eloquent tribute was paid to his great services by the Chairman of the Commissioners in announcing his decease at a recent meeting of the Commission.

Congress of Protestant Church Architecture, Berlin.

Writing from Berlin on the 5th inst. on behalf of the Association of Berlin Architects, Herr v. d. Hude, Government Surveyor of Buildings, invites the Institute to send representatives to attend the Congress of Protestant Church Architecture, organised by the Association, to be held in Berlin on the 24th and 25th May next. The Association, he says, will esteem it a great pleasure and honour to welcome any of their professional brethren in England interested in the subject who

may attend as such representatives. He forwards a copy of a work published by the Association, entitled *Der Kirchenbau des Protestantismus von der Reformation bis zur Gegenwart*, which is intended as a preparation for the work of the Congress.

The French Archæological Congress.

The sixty-first session of the Congrès Archéologique de France, under the direction of the Société Française d'Archéologie, is to be held this year at Saintes from 29th May to 2nd June, and at La Rochelle from the 3rd to the 6th June inclusive. The Comte de Marsy, President of the Congress, in forwarding to the Institute the programme of events, sends a cordial invitation to members to attend the meetings and take part in the proceedings. The programme is too long to be quoted here, but No. 14 on the list, "Étudier "l'influence exercée sur les Arts en Aunis et "en Saintonge par les Anglais, aux différentes "époques de la domination Anglaise," appeals specially to us on this side the Channel. The subscription is ten francs, which, besides other privileges, entitles the subscriber to participate in the various excursions to places of interest in the neighbourhood.

Flemish Art.

Monsieur Van Ysendyck [*Hon. Corr. M.*], of Brussels, has presented to the Library a large-paper copy (*édition de luxe*) of his great work, entitled *Documents classés de l'Art dans les Pays-Bas*. It would be impossible to overestimate the value of the gift he has made to his British confrères; composed of all that concerns Flemish Art in Belgium and Holland, it comprises three series, the 750 plates of which are classified in alphabetical order. The first series consists of three volumes: (1) Plates from *A* to *E*; (2) Plates from *F* to *O*; and (3) Plates from *P* to *V*. This first series consists half of photographic views of old buildings and half of reproductions of drawings and prints, the author's object in publishing the latter half being to make known all the works relating to Flemish Art extant in Belgium and Holland. In fact, if one could collect all the books from which these reproductions of drawings and prints are made, one would possess the literature of Architecture and the Arts in the two countries of Holland and Belgium. The second and third series—one volume each—are composed entirely of photographs of executed works such as fireplaces, cathedral-stalls and church-fittings and furniture generally, and a host of other similar architectural details; and the author, when sending these five magnificent folios, expresses the hope that his "ouvrage intéressera beaucoup de "membres de l'Institut, où l'on a tant de goût et de "respect pour les productions de nos ancêtres." A review of this collection will appear in due course in the JOURNAL, but meanwhile it is pleasant to be able to assure M. Van Ysendyck, who is a Member of the Commission Royale des Monuments de Belgique, that his kind present will be thoroughly appreciated in this country.

Australian Artists.

Mr. Claud H. Simson, North Adelaide, South Australia, sends details of a "Scheme for the "Initial Proceedings necessary to regulate and "nationalise Australian Art." It is proposed that the leading Art Societies of the Australian provinces should form a united fraternal body, to be called "The Australian Artists' Association." Each province is to govern its local affairs, the local Society to take the name "Australian "Artists' Association." Three delegates from each province constitute the "Premier Council," which is to regulate all affairs appertaining to Australian art and affecting Australian artists, and adjudicate upon any matters referred to them by the provinces. It is proposed to hold an annual exhibition of Australian works of art in each province in succession, the societies being pledged to send the best selection of pictures, sculpture, or other art work from their own local exhibitions. As the scheme is purely national, the Australian Governments are to be asked to defray the carriage expenses of exhibits to and from the exhibitions. Medals are to be awarded to the producers of the most artistic work. Fellows, Associates, and Hon. Members form the three classes of the Association. It is proposed to start a monthly magazine, to be called the *Australian Artist*, divided into province sections, each section to be edited by its own province, and a general editor and critics to be elected by the Premier Council. Australian architects are invited to join the federation, and exhibit their best work in conjunction with the Association.

Architecture in Sydney.

Sir J. Salomons, Chief Justice of New South Wales, has presented through Sir Arthur Blomfield a series of thirty-three photographs, finely executed and handsomely mounted, illustrating the architecture of numerous public and private buildings in Sydney. The views, which include the General Post Office, Town Hall, Exchange, Government Offices, various banks and colleges, and principal streets, are specially representative of the progress of architecture in Sydney, and form a valuable addition to the collection of photographs of Australian buildings in the Institute Library.

House Drainage, &c.

The Borough Surveyor of Stockport, Mr. John Atkinson, has forwarded a compilation which he has recently made of information obtained by him respecting the practice followed in different places with regard to the system of drainage adopted in the erection of new houses, and on some matters connected with sewage. Mr. Atkinson put a series of thirteen questions to the City or Borough Sur-

veyor or Engineer of thirty-one towns, including Birmingham, Brighton, Liverpool, Manchester, &c., and the replies forwarded to him have been published by the Borough of Stockport in the compilation under notice. The replies show that the practice usually followed is based on the Public Health Acts and By-laws made thereunder, though this is by no means invariably the case.

NOTES, QUERIES, AND REPLIES.

The Temples of Kashmir in the Sixteenth Century.

From Mr. NEY ELIAS, H.M.'s Consul-General in Khorasán and Sistan—

Attention has been attracted lately to the subject of the ancient temples in Northern India, Kashmir, &c., on account of its having been discussed by experts in this JOURNAL. I have no intention of joining in any controversy regarding the origin or style of architecture of these buildings, but may perhaps be permitted to note some remarks that were made upon them, about three and a half centuries ago, by a Moghul author named Mirza Haidar Doghlat, of the house of Jaghatai, a cousin of the Sultan Baber, and for some years ruler of Kashmir during the reign, in India, of Baber's son and successor, Humáyun. The account this author gives is not an accurate one, as will be seen, and indeed it contains nothing to show to which particular temple it refers. It seems to be intended for a general description of all the ruined temples in Kashmir, though these are not all so much alike in style as the author implies, while their dimensions differ greatly. It cannot, therefore, be in any sense instructive to antiquarians, but merely curious, as one of the oldest accounts that have come down to us—perhaps the oldest from the pen of any Mussulman, or foreign, writer. The following is a translation, kindly made for me by Mr. E. D. Ross, from Mirza Haidar's book—the *Tarikh-i-Rashidi*—written about the year 1545 :—

"First and foremost among the wonders of "Kashmir stand her idol temples. In and around "Kashmir there are more than 150 temples "which are built of blocks of hewn stone fitted so "accurately one upon the other that there is "absolutely no cement used. These stones have "been so carefully placed in position, without "plaster or mortar that a sheet of paper could not "be passed between the joints. The blocks are "from 3 to 20 *gaz* * in length, 1 *gaz* in depth, and "1 to 5 *gaz* in breadth. The marvel is how these "stones were conveyed and erected. The temples "are nearly all built on the same plan. There "is a square enclosure which in some places "reaches the height of 30 *gaz*, while each side is "about 300 *gaz* long. Inside this enclosure there "are pillars, and on the top of the pillars are square "capitals. On the top of these, again, are placed "supports * and most of these separate parts are "made out of one block of stone. On the pillars "are fixed the supports of the arches, and each "arch is 3 *gaz* or 4 *gaz* wide. Under the arch are "a hall and a doorway. On the outside and "inside of the arch are pillars, 40 to 50 *gaz* in "height, having supports and capitals of one "block of stone. On the top of this are placed "four pillars of one or two pieces of stone. The "inside and the outside of the halls have the "appearance of two porticos, and these are covered "with one or two stones. The capitals, the "ornamentation in relief, the cornices, the 'dog-"'tooth' work, the inside covering and the out-"side, are all crowded with pictures and paintings, "which I am incapable of describing. Some "represent laughing and weeping figures, which "astound the beholder. In the middle is a lofty "throne, of hewn stone, and over that a dome made "entirely of stone which I cannot describe. In "the rest of the world there is not to be seen, or "heard of, one building like this. How wonder-"ful that there should be 150 of them!"

"There is a lake in Kashmir, Ulur by name, "about seven *farsakhs* in circumference.† In the "middle of this lake Sultan Zain-ul-Abádin, one "of the Sultans of Kashmir, built a palace. First "of all he emptied a quantity of stones into the "place and on these erected a foundation [or "floor], of closely-fitting stones, measuring 200 "square *gaz* in extent, and 10 *gaz* in height. "On this he built a charming palace and planted "pleasant groves of trees, so that there can be "but few more agreeable places in the world."

The largest of the ruined temples in Kashmir is the beautiful pile at Martand, said to have been built by a Hindu king about the end of the eighth century; but even if we assume Mirza Haidar to intend his description for this one, we cannot hold him guiltless of exaggeration. The greatest length (that of the side walls) of this temple is, in reality, only about 90 yards, and that of the front about 56 yards, as reported by Mr. G. T. Vigne in his *Travels in Kashmir*, published in 1842. The height of the pillars, including foot and capital, is barely 10 feet instead of over 100; while the huge blocks of limestone, of which the temple is built, were found by Mr. Vigne to measure from six to nine feet in length, "of proportionate "solidity and cemented with an excellent mortar." The Brobdingnagian proportions of Mirza Haidar have, therefore, to be considerably pared down in

* The *gaz* is usually taken to be an ell, and consequently about 24 inches; but according to Sultan Baber, who states its length accurately (in his Memoirs), as it was used in Central Asia and India in the fifteenth and sixteenth centuries, it should measure about 28 inches.—N. E.

* Literally "small arm-pits."—E. D. R.

† The Wular Lake. The *farsakh* may be taken at four miles. The author usually exaggerates measurements, but in giving twenty-eight miles as the circumference of the Wular he seems to have understated the fact.—N. E.

every instance, as is usually the case with statements of Asiatics made in figures.

As regards the palace on the island of Lanka in the Wular Lake, its ruins are to be found still, and have often been explored by travellers since the days of Mirza Haidar. The island lies near the entrance of the river Jhelum into the lake, and measures some 300 yards in circumference. The French traveller, Bernier, visited Lanka in 1665, and speaks of the palace as "an hermitage "... which it is pretended floats miraculously "upon the water;" though he also explains that, according to tradition, "one of the ancient kings "of Kachemire, out of mere fancy, built it upon "a number of thick beams fastened together." In 1821 Mr. Moorcroft landed on the island, and found two ruined buildings: one of stone, at its eastern extremity, around which were strewed several massive polygonal columns; the other merely an oblong house, with pitched roof and plastered walls bearing fragments of blue enamel. The first of these he regarded as of undoubted Hindu construction; but he makes no mention of the origin of the other. The foundations of both, however, according to his native informants, had been made up of the stones derived from the ancient Hindu temples in other parts of Kashmir, which had been destroyed by the Mussulman king, Zain-ul-Abádin, previous to his building the mosque, or palace, on Lanka. If this is the case, it is possible that, in constructing the palace itself, stones, columns, &c., from the ancient temples may have been used; and this may have led Mr. Moorcroft to believe the ruin to be of Hindu origin; although he records having seen an inscription to the effect that the building had been erected by Zain-ul-Abádin, who reigned from 827 to 878 A.H. (1424 to 1473 A.D.). There are many traditions connected with this ruin, but all seem to point to an artificial foundation for the buildings that were erected there. In all probability, there was originally a shoal rather than an island; or perhaps a shoal that appeared as an island above the surface of the lake only during the low-water season. If this is the case, the spot would no doubt have been soft and muddy, and a foundation for any palace or temple put up there would have had to be laid. However this may be, Mirza Haidar rightly ascribes the building to Sultan Zain-ul-Abádin, who reigned in Kashmir only about a hundred years previous to his own time, for in 1874 Mr. A. Constable (Bernier's Editor) found, like Mr. Moorcroft, a slab of black slate bearing a Persian inscription, dated 1443–44, which had been carved to commemorate the erection of the edifice by that Sultan—Bernier's "ancient king of Kachemire." *

A few words about this strange Moghul author may not be out of place here. Though a soldier of fortune, he was no mere Dugald Dalgetty, but a man of taste and intelligence, who wrote the history of his house and times, and included his own remarkable adventures. He was the grandson of a ruling prince of Kashgar, and his father having been killed in the Usbeg wars, he had found a refuge, during his early years, in Sultan Baber's court and camp. After Baber's reverse near Bokhara, by the confederated Usbeg chiefs in 1514, he left the Sultan's army to take service under another near relative, then the ruling Khan of Kashgar, and soon became the Khan's most trusted minister and general. The times were stormy—wars and forays were on foot in every direction, and our author seems either to have led, or to have accompanied one expedition after another into the States surrounding his master's country, until, in 1528, he was sent to conquer Ladak and Kashmir. How easily this wanton task was accomplished he tells us in his book, and he is also candid enough to recount how, immediately afterwards, he undertook the conquest of Tibet and sustained a crushing defeat—or perhaps, rather, an overwhelming disaster—for the Tibetans, being an unwarlike nation, unable to oppose even the Moghuls of Kashgar, relied on the sterile nature of their mountain-land and the severity of their climate, to fight their battles and defend for them their religion and holy places. The invaders, when within a few days' march of Lassa, were led into impracticable uplands lying (as we know now) 13,000 to 15,000 feet above the sea, where they and their horses perished in large numbers from hunger, cold, and the rarefied air, and whence a remnant only, under the energetic Mirza, found their way back, some to Ladak, some to Kashgar, in straggling discomfited parties. Mirza Haidar himself, not venturing to return to Kashgar, made his way by a difficult route to Badakhshan, and thence, by Kabul, to Delhi, where he found service under his relative Humáyun, then at war with the Afghans of Bengal under Shir Shah. He was present at the ruinous defeat suffered by Humáyun at the battle of Kanauj, the retreat to Delhi, and the subsequent flight to Lahore; and when the fugitive Moghul princes took different routes to find a refuge, each for himself, our author, remembering what he had learned of the secure position of Kashmir when he invaded it from the north, betook himself, with a small following, to the borders of that country, and, forming an alliance with some local chiefs in rebellion against the Kashmiri Raja of the day, invaded the State and conquered it. Being too good a politician to set himself up as king, he assumed the government in the name of his master, Humáyun, and ruled as the Sultan's deputy for some ten or eleven years, when he was killed during a night attack of some petty chiefs who had risen against him. His book was

* See Constable's "Bernier," pp. 416–17; and Moorcroft's *Travels*, vol. ii. pp. 223–5.—N. E.

written, in Persian, while enjoying the leisure of the last few years of his life in Kashmir. No European translation of it has appeared, although it is one of the best records of the history of Central Asia from the fourteenth to the sixteenth century, and was written by one who was himself an actor in most of the scenes he describes.

James Fergusson.

From JAMES BURGESS, LL.D., C.I.E. [*H.A.*], formerly Director-General of the Archæological Survey of India—

I read with much interest the two Papers on Fergusson [pp. 383–89]; but he has not been fairly represented in the first. I corresponded regularly with him for upwards of twenty years, and during the last fifteen of his life almost weekly. I have often dissented from his conclusions, when he would first flatly contradict, and then, when I stated my reasons, he would open his eyes, stare, listen, ask questions, turn up photos, look at the evidence, show me the evidence for his views, and finally either accept my view as based on new evidence, or convince me that his grounds were the stronger. Many a forenoon have I spent in his study, and never without astonishment at the minuteness and accuracy of the observations on which he had based his conclusions—stated often in a general and abrupt sentence. Had he possessed the undercurrent of scorn Mr. Flower speaks of, we never could have got on. But while he was not to be easily blown out of conclusions based on all the knowledge available and thought out with the most cautious logic—and he scorned all would-be "authority"—put new evidence before him and you felt it was welcomed, weighed honestly; and, if sufficient, he would thank you in the finest way for the change he had to accept. Nor did he despise the graces of language. He was not gifted as a writer, and knew it; his aim was simply to express himself clearly without verbiage, and perhaps he overlooked the fascination those graces might have given to his works.

Early Brick Architecture in Great Britain.

From Mr. C. H. PETERS, Government Architect, at The Hague—

Being engaged in the study of ancient brick architecture in Europe, may I venture to ask my British confrères for information thereon?—

1. Which are the oldest buildings, constructed either wholly or partly of brick, still existing in Great Britain, and where are they situated?

2. Which are the oldest existing examples of brick vaulting in Great Britain, and of what form and construction?

3. What is the early history of brick in Great Britain, and what influence has that material had upon the architecture of the country?

4. Which is the best historical account of old wood roofs and wood vaulting in Great Britain?

9, CONDUIT STREET, LONDON, W., 26 *April* 1894.

MINUTES. XII.

At the Twelfth General Meeting (Ordinary) of the Session, held on Monday, 23rd April 1894, at 8 p.m., Mr. J. Macvicar Anderson, *President*, in the Chair, with 34 Fellows (including 10 members of the Council), 38 Associates, 2 Hon. Associates, and 34 Visitors, the Minutes of the Meeting held 9th April 1894 were read and signed as correct.

The Secretary announced the decease of the following Fellow—namely, William Haywood, M.Inst.C.E.

The following members, attending for the first time since their election, were formally admitted, and signed the Registers of Fellows and Associates respectively—namely, Thomas Batterbury, *Fellow*; R. Shekleton Balfour, Harold Clapham Lander, and George Ernest Nield, *Associates*.

Papers on FURNITURE: DOMESTIC AND ECCLESIASTICAL, by John Belcher [*F.*], Mr. C. F. A. Voysey, Mr. Aldam Heaton, and W. D. Caröe, M.A. Cantab. [*F.*], having been read and discussed, a vote of thanks was passed to the authors, and to the several owners who lent drawings, fabrics, altar furniture, plate, and other articles in illustration of the subject treated; and the Meeting separated at 10 p.m.

The Illustrations to the Papers on Furniture.

Mr. J. L. Pearson, R.A., lent twelve sheets illustrating varieties of Church Furniture, the principal of which were original drawings by himself of work at Peterborough and Truro. Also a very charming triptych from Wantage, and the large triptych from St. John's, Red Lion Square.

Several photographs of the late W. Burges's designs, mainly of Worcester College, Oxford, and a reliquary for the Marquis of Bute, were lent by Mr. A. Robinson. The very fine Lichfield Cope and Chasuble, a bookcase, and mantelpiece, were interesting examples of the work of Mr. G. F. Bodley, A.R.A., and Mr. Garner; an album of photographs of designs for furniture (chiefly classical) from the same hands was very interesting.

An original drawing of the Holy Trinity Church at Bingley by Mr. Norman Shaw, R.A., was noticeable, as were also two original drawings by the late Sir G. G. Scott, R.A., for the Chalice of St. Mary Abbott's, Kensington, with a photograph of the executed work.

Some characteristic specimens of Mr. James Brooks's church fittings were shown in drawings and details.

Photographs and details, chiefly from Rhinefield, Hants, a fine design for an organ from Blenheim Palace, also the rood screen from Holy Trinity, Hastings, were sent by Messrs. Romaine-Walker and Tanner.

One of the screens was hung with designs for furniture and inlay by Mr. Voysey, an excellent illustration of his Paper and methods of workmanship: great reserve, good proportion, and delicacy of parts forming the chief

characteristics. Two photographs of Sideboards, one by the late W. Eden Nesfield, and another by Mr. J. M. Brydon, were exhibited.

Several ancient examples of metal and other decorative work were lent by Mr. Krall. The most interesting specimens were—a Ciborium, German, fourteenth century; another of the fifteenth century; a Keybox, German, seventeenth century; several Chalices, French and German, thirteenth to sixteenth century; a wood Altar Cross, with mother-of-pearl inlays, exceedingly fine, Italian, sixteenth century; also three brass Salvers, probably sixteenth century.

Mr. Caröe lent drawings and photographs of eight organ cases, of very varied designs and sizes, stalls, lecterns, and other fittings and furniture.

A photograph of the Mayor's Chair in the centre of the Corporation Pew at St. George's Church, Deal, was lent by Mr. Burke Downing.

Not the least interesting contribution was from Mr. J. D. Crace. This consisted of ten drawings for furniture by A. W. Pugin, dated 1849–50; also nine sheets of drawings by the late J. G. Crace, mainly from examples at the British Museum, which served to illustrate a Paper read by him on Furniture at the Institute in 1857.

PROCEEDINGS OF ALLIED SOCIETIES.

LEEDS AND YORKSHIRE: SESSIONAL MEETING.

Hospitals.

On the 16th inst. the following Paper on the subject of Hospitals was read before the Leeds and Yorkshire Society by William Henman [*A.*], *Inst. Medallist* 1866, *Pugin Student* 1868, of Birmingham:—

Although many excellent buildings have been erected, and much valuable information published thereon, the art of hospital planning is of comparatively recent growth, and has been one of rapid development; hence there is reason to believe it has not yet attained maturity, and there is a probability that further scientific investigation may, in the near future, demand the relinquishment of opinions now held to be established, and the adoption of others not yet entertained. If, then, I do not place before you clearly a method for designing an ideal hospital, it is because I know of no such method; all I can do is to offer a few suggestions as a guide in the investigation of what will best meet the requirements of any special case or time. It is necessary to become thoroughly acquainted with what has already been done, and is believed to be in the right direction; but, in addition thereto, I would urge anyone entrusted with the design of a hospital, whether great or small, to ascertain what failures there have been, to note defects in existing buildings, and thoroughly probe their causes and effects. Such will be positive knowledge acquired, which may be turned to account by the avoidance of what has previously led to disaster. I desire to emphasise this; because, to know that patients do reasonably well in a particular hospital is, after all, comparatively negative information; for it is possible that a similar building upon a different site, or for a different class of patients, or, perchance, under other management, might show different results. As an example, practical experience has proved that in military tent-hospitals cases have been treated with much success, and some people, in consequence, urge that hospitals should be of that temporary character, without considering the vast difference there is between the surroundings of a camp hospital in the open country, intended only to be used for a short period, and the more permanent requirements of a populous city or town; or the difference between the constitution of the soldier, well trained and inured to exposure, and of that of the town artisan, dwelling and working in a close, and often impure, atmosphere. On this point, at least, those who have a right to be considered authorities on the subject are agreed that hospitals should, as a rule, be permanent in character and erected with sound and substantial materials. It certainly behoves all who undertake the design of such buildings that they fully realise the important bearing which their knowledge and care may have upon the comfort and health of many during a long series of years.

Much has been written on the subject of hospitals, and we are highly indebted to Sir Douglas Galton for his excellent publications; also to Mr. Saxon Snell and Dr. Mouat for their joint work on *Hospital Construction and Management*, and to Mr. Henry C. Burdett for the valuable mass of information which he has collected and issued under the title *Hospitals and Asylums of the World*. In these works are brought together a history of hospital development and the views of almost all who have spoken with authority on the subject. If they have a fault it is, in my opinion, that on a few, but important, points they incline to dogmatise in a manner which may retard progress; therefore I strongly advise personal examination of existing buildings, and inquiry of those who have the management, i.e. of surgeons, doctors, house governors, matrons, and nurses, who can give information on matters of detail, be they never so trivial. Of course you must be prepared to find that "doctors differ," and other officials named much more so; a right conclusion can therefore only be arrived at by careful sifting of views expressed.

The designer of a hospital must, as it were, be prepared to serve two masters—the one being the medical and surgical requirements, the other those of domestic and general supervision and management. In consequence, hospital plans show three distinct types: First, those in which administrative facilities predominate; secondly, those in which medical and surgical requirements have received the greater consideration; thirdly, those in which the known laws of health have been duly considered in conjunction with ease of general management. Should you visit a building of the first type, and question those responsible for the administration, they will probably express a favourable opinion; but doctors and surgeons might condemn it. As regards the second, doctors and surgeons might extol, yet the lay administrators would find fault with it. And, unfortunately for architects, with the third type it is probable neither doctors, surgeons, committee, matron, house governor, nor nurse would be satisfied on all points; but such are the exigencies of human existence that perfection seems to be unattainable in complex undertakings. Hence the necessity for compromise; and therefore the architect must, after having collected opinions from all quarters, use his judgment as to what should be adopted, relinquished, or modified, so that the buildings may in all important particulars reasonably fulfil the purposes for which they are designed.

Notwithstanding the numerous classes of hospitals demanded by the many ills and ailments of mankind, all have a primary and common object, viz., the cure or alleviation of suffering caused by disease, or the repair of bodily hurt; and there are a few well-assured essentials, universally recognised, which must be secured in and about such buildings, the chief of which are light and pure air, next in importance being convenience of supervision and administration. In addition, we, as architects, must hold ourselves responsible for the proper proportioning of every part and for the structural stability of the whole. We are also expected to treat such buildings appropriately, and, I may say, artistically, for although some sanitarians and writers on hospital construction inveigh not only against expenditure on external effect, but also against any attempt to give architectural expression to hospital design, it fortunately happens that

hospitals are locally classed among the principal buildings, and the public who support them demand that they shall, in external appearance, demonstrate the importance which must ever attach to the work carried on within. What we must aim at, then, is to secure all that is essential for the treatment and comfort of both patients and staff by careful arrangement of plan, and give suitable external expression thereto in as artistic a manner as possible. This latter is not only possible but right; for there can be no reason why a useful thing should be unsightly, or why those who suffer and those who have suffering constantly before them should not look out on that which is pleasing to the eye. Yet, how often do we find unsightly buildings classed as useful—generally, no doubt, by those devoid of artistic instinct; for, on close examination, it will be discovered that such unsightliness is but the evidence of want of knowledge, thought, or care on the part of the designer, and it does not in the least follow that unsightliness is more economical or less adapted to requirements than artistic expression; which, however, has many phases, and is as impossible to limit or define as either space or eternity.

I have already hinted that, with our present knowledge, it is unwise to lay down absolute rules for future guidance in hospital planning, or to require that such and such a site must be secured, that the number of beds must not exceed so many upon a given site, that they must be divided among so many wards of defined dimensions, that there must be a proportionate number of each sex, or what should be the general classification as regards surgical, medical, and other cases. The demands of a district and other local circumstances must determine such; and, moreover, they are points on which the architect is seldom consulted. The Committee of Management or medical men, rightly or wrongly, alone determine these matters; it being assumed that the business of an architect is limited to devising the best arrangements and means for carrying into effect stated requirements, however unsuited and sometimes impossible they may be.

Broadly speaking, there are two main divisions in hospital buildings to be recognised, namely, for infectious cases and for general surgical and medical cases. Then a distinction must be drawn between large town hospitals and hospitals for special diseases or smaller country ones, in each of the above classes. Those required in country districts are usually for a limited number of patients, the majority of whom suffer from ordinary ailments. Simplicity in plan and design should, therefore, be the leading characteristics. For them an ample area of land is generally secured, and when such is the case the wards are most convenient if only of one storey; but there is little objection to their being of two storeys—by which the sexes can be divided—if thereby a better aspect or some other advantage can be obtained. They should be arranged so as to secure, in the best manner, the essentials of light, pure air, and easy supervision. As far as practicable there should be windows on two sides of the wards, so as to catch the health-giving rays of the sun.

The administrative department should be proportionate to the number of beds; and, as annual expenditure is usually limited in amount, the greatest care should be taken to plan the building so that labour necessary to keep it clean and in proper working order may be reduced to a minimum. At the same time, all necessary adjuncts, such as an operating-room, kitchen department, rooms for the residential staff, mortuary, laundry, &c., should be provided; for it is false economy to attempt to make any part serve for various purposes, and, for one and all, a suitable aspect should be secured. This I mention because in some instances I have noticed that, even when the wards have been properly placed, the sitting-rooms and bedrooms for matron, house-surgeon, and nurses have had to put up with a north aspect only.

In small country hospitals provided with properly constructed open fire-places, to the back of which an ample amount of fresh air is conducted and warmed for admission to the wards, and with windows which can be easily opened, no special additional system of heating or ventilation may be called for; unless it is some simple form of hot-water heating in the corridors. Much that has been said applies equally to small town hospitals and hospitals for special diseases, although the smaller area of site and of open space around often leads to difficulties in planning, and necessitates further compromise in some direction or other. In large town hospitals such difficulties greatly increase. The high price of land generally restricts the open area available; so that, to provide the large number of beds required, wards have to be of several storeys. Ingenuity must therefore be exercised in arranging these loftier buildings, so that one portion shall not deprive other parts of the essential of light, nor impede free circulation of air around.

If we examine the plans of hospitals erected during the last hundred years or so, many varieties will present themselves. We will limit the subdivision, however, to—(1) Plans on the corridor arrangement; (2) those on the pavilion principle; (3) those with circular or octagonal wards; (4) those with entirely detached wards.

When we consider that, in modern times, the hospital plan is derived from that of dwelling-houses made use of for nursing purposes, it is not surprising that the earlier examples consist of a series of rooms, of greater or less size, on one or both sides of a corridor, and generally forming a compact block of building. So long as the number of patients therein accommodated was not great, they would probably do fairly well; but, with the rooms or wards large and closely packed, the corridors would be dark and badly ventilated, so that infection would be readily conveyed from one portion of the building to another; hence, by degrees, what is known as the "pavilion "principle" was developed—i.e. a series of rectangular wards, placed some distance apart connected by a corridor. A further development is the circular or octagonal ward, and then entirely detached wards.

Other varieties of plan there undoubtedly are; but I believe it will be found they are, without exception, the result of special requirements of the institution or site, or simply a transition between the more definite classes. For instance, the double ward is a transition between the corridor and single pavilion plan; being arrived at by first piercing the corridor walls on both sides and then omitting the corridor and one series of arches and supports. The employment of circular and octagonal wards no doubt arose from a desire to secure the essentials of light and pure air about the buildings; the forms are certainly fascinating, but a careful analysis of their capabilities will show they can be employed only under very definite and limited circumstances. Unless such wards are entered from the north and have the conveniences and accessories on that side, the full benefits of the forms are not secured; then, if the number of beds to be provided is below, say, eighteen, they are either too close together at the feet for the requirements of nursing, or space is wasted, and if the number of beds exceeds twenty there is more lost space; and even at that number the area per bed is excessive, and the distance across the ward prevents the penetration of the sun's rays throughout.

The absence of corners wherein dirt can accumulate and air stagnate is certainly an important consideration in a circular ward; but in a rectangular ward the corners can, and should, be rounded, or, better still, the angles canted and rounded off.

The latest development in plan is the entirely detached ward, either of one storey or even two storeys, provided there is no intercommunication. Theoretically, the best isolation is thereby secured, but the practical difficulties in

administration are, in this country at least, too great for anything like its general or even frequent adoption; and I am convinced that by the intelligent employment of suitable precautions the inconvenience of having to pass out of doors in all weathers can, and should, be obviated. Yet, if the theory of development shown to have taken place were pushed to its legitimate extreme, it would require that each patient should be treated in a detached building, well lighted and surrounded with fresh air—the inference being that disease is a source, if not the source, of disease. Whether that be true or not, or to what extent it is a fact, we must leave those who are studying the subject to determine; but it is evident that such a system of isolation is quite impracticable, although it is incumbent upon us architects to clearly impress upon our memories and realise in hospital planning that each separate ward must be isolated, as far as practicable, from any other, if the views of the medical profession, as at present expressed, are entertained.

As so much importance is attached to this question of isolation, let us clearly ascertain what is implied thereby. Not simply distance apart in the same building; for when I visited Netley Hospital some time since the Medical Superintendent informed me it had been observed in that institution that odours, known to have had their origin at one end of the building, quickly became perceptible at the other end, wellnigh a quarter of a mile away. Such conveyance could only have been by movement of the air within the building, which consists of a series of ward pavilions, connected by wide and lofty corridors on each side, with staircases at intervals. As a further illustration, all of you must be familiar with certain houses in which rooms are pervaded by the smell of cooking, although the kitchen may be at a distance and appear to be well cut off. This points to the fact that air has a tendency to circulate within a building, and if each portion is to be properly isolated from the rest, means must be devised to prevent air from one apartment travelling to any other.

The influences which principally cause this circulation of air within a building are—(1) Variation of temperature within; (2) variation of temperature without; (3) movement of the outer atmosphere; (4) the law of diffusion of gases.

As a rule the wards of a hospital are maintained at a higher temperature than the corridors, the sanitary conveniences and other adjuncts; and they are provided with large open fireplaces with insufficient inlets for admission of air from the outside, so that the additional quantity required to replace that which ascends the flues is drawn in from the adjoining corridor, and, perchance, from the water-closets or other available, and maybe equally impure, sources. And if from the corridor, then to replace that, it will be more than likely to be drawn from another ward at a lower temperature or level, up stairways which, but too frequently, assist in the circulation of air within a building.

While visiting existing hospitals, particularly some of those most recently erected, I have been impressed by the large expenditure which has been incurred and the daily labour which must be involved by having excessively long corridors disconnecting pavilions which contain, respectively, male and female patients. It cannot be supposed this distance apart of the sexes is required on moral grounds alone; and, if necessary, can only be to prevent the conveyance of infected air from one set of pavilions to the other; yet, as in some cases, there are at the extreme ends of a corridor over 300 feet in length four large wards and their accessories in air communication with one another by means of a central staircase. I have been tempted to ask if it is supposed that germs of infection from the opposite sexes have an affinity the one for the other, or that their conjunction is essential to the propagation of another crop of disease. As I have found no one bold enough to assert that there is the least foundation for such a theory, does it not appear ridiculous that such an enormous length of corridor should intervene between the wards for males and those for females, if for the same sex they can reasonably be placed so near to one another and open on to a common staircase? I submit it would be more sensible to place the pavilions equidistant along the corridor, and to detach and enclose the staircases, particularly when the wards are heated by open fires, and the opening of windows and other inlets are depended upon for admitting fresh air; for in cold weather and at night such are sure to be, in great part, closed, and air is certain to circulate from one ward to another.

The other causes mentioned as influencing circulation of air within a building—viz., variation of temperature outside, external movement of the atmosphere (or, in a word, wind)—and the law of diffusion of gases cannot easily be controlled, but they must be kept in mind and reckoned with in arranging any definite system of ventilation and heating.

It has become a common practice to speak of ventilation as "natural" or "artificial." With a pure outer atmosphere, steady in movement and of uniform temperature, what is called "natural ventilation" might be possible; that is, free admission of the outer air to a building, trusting to movement of the atmosphere without for securing the necessary change within. But in our constantly varying climate, with the smoke-laden, and often impure, atmosphere of our cities and towns, such a natural system is impracticable; therefore "artificial" or "special" means must be adopted, particularly for hospitals, because in them an unnatural state of the air is produced by the massing together of a number of sick people. Two systems only of "artificial ventilation" are known, viz., one by which air is extracted by suction, the other by which air is forced in by propulsion; and after most careful examination of various buildings in which schemes of artificial ventilation have been set up I have decidedly come to the conclusion that, wherever an attempt is made to combine the two systems, the chances of failure are great. Then comes the question, Which of the two systems is likely to give the better results? Before this can be determined, a clear definition must be arrived at as to what is to be understood by the term "ventila-" "tion."

Is it not the continuous removal of air vitiated by respiration, exhalation, putrefaction, combustion, or any other process, and, at the same time, the provision of an equal and continuous supply of pure air of suitable temperature and humidity without causing unpleasant draughts? And for hospitals, as I have previously stated, this must be effected in such a way that there shall be no circulation of air from one to any other apartment.

If this definition be accepted, we have next to consider whether by extraction or by propulsion it is possible to fulfil its requirements. We have already seen that "natural ventilation" cannot be relied on; and let me point out that wherever an open fire is employed you no longer rely upon "natural ventilation," but at once set up an "artificial" system, viz., that of extraction; for as the air in the flue becomes heated it expands, and then, being lighter than the ordinary atmosphere, it ascends and sucks up with it a portion of the air of the apartment. And whether heat or a mechanical appliance, such as a revolving fan, is employed for extraction, it should be recognised that a system of "artificial ventilation" is set up. And what is the result? Air is certainly being extracted, but where is the air coming in, which must enter, to replace that which is drawn off? Special inlets, it may be said, are provided. Yes; but what kind of air will they admit? Perchance it is frosty or foggy outside, dry or surcharged

with moisture, and certainly more or less laden with dust, dirt, and insect life, as well as those minute organisms now recognised as playing so important a part in connection with disease; and, further, with such a system, how is it possible to regulate the supply? By opening or closing the inlets? Yes. But, with the same power of extraction, what again is the result? Simply that the velocity through the remaining inlets is increased in a more direct line to the outlets, causing draughts; in addition to which, as each inlet is exposed to the action of the outer air, a dual system is set up; for, whenever the wind is blowing against an inlet opening, a power of propulsion, constantly varying in force, is exercised, which has a further tendency to create draughts.

Under such varying and adverse conditions our ideal definition of ventilation is surely impossible; let me therefore endeavour to show how, by the alternative system of "propulsion," can be secured more definite and therefore better results. For this purpose I will refer to the means to be adopted in the New General Hospital, Birmingham, which is now in course of erection from my designs. They provide an installation for heating and ventilating the buildings, the cubical capacity of which equals about two million feet; so that, as the air may be changed ten times per hour without opening any windows, twenty million feet of air every hour has to be propelled, cleansed, and warmed; for which purpose there will be eight "fans," from 6 to 8 feet diameter, to be turned by electric motors, 2,000 superficial feet of cleansing screen and about 35,000 feet of steam tubing.

It is only right that I should state that the scheme has been worked out in conjunction with Mr. William Key, of Glasgow, who has proved its efficacy during the last four years in the Victoria Infirmary in that City, as well as in several schools and other buildings.

A selection is first made of a position, uncontaminated by surroundings (or of more than one such position if the buildings are extensive), where air can be drawn in towards an extended screen, kept moistened with water, and periodically flushed, to free it from the large amount of dirt which it intercepts. The screen, I may mention, is formed of a series of cocoa-nut fibre cords stretched vertically and interlaced with copper-wire to keep them in position. On the outer side a coil of steam or hot water pipes is placed to prevent freezing in the winter, and on the inside are other heating coils, arranged so that by means of doors or louvres the air passing through or under them may be regulated. It is then forced onward by means of a rotary fan or air-propeller, set in motion by steam, water, gas, or other power—preferably an electric motor—and finds its way to the several rooms, wards, or corridors, by means of a wide and lofty horizontal duct and up flues, all calculated to the required areas, at the base of which are more heating coils, together with a simple contrivance by which both the volume and temperature of the air-supply to any separate part of the buildings can be adjusted to a nicety.

The air enters where required by means of trumpet-mouthed openings, at about two-thirds the height of the storey, so as to disperse evenly throughout the apartment; and at the same time it expels an equal amount of air, principally through openings provided on the same side of the room as the inlets, up flues of the proper sectional area, into ducts in the roof, and thence to the open, through valved and louvred turrets, four-sided, so that outer movement of the atmosphere shall exert no adverse influence upon the outflow.

The principal advantages of this system of ventilation by "propulsion" are: 1. The source of the air-supply is known. 2. The air is not only cleansed of ordinary dust and dirt, but also freed from flies, moths, and other insect life, in addition to which carefully conducted scientific experiments have proved that micro-organisms are entrapped by the moistened screens. 3. Another important function of the screens is to maintain the air-supply in a proper state of humidity, for, paradoxical as it may seem, they moisten the air when too dry, and dry it when it is over-saturated with moisture. 4. Any suitable temperature can be maintained for an indefinite time in any apartment, and for each it can be regulated, and that without any open fires, with their attendant dirt, labour, and noise, in keeping up and in conveying coal about the buildings, and without a single steam or hot-water pipe in any habitable part of the same. 5. Complete change of the air throughout the buildings up to ten, twelve, or even more times an hour without draughts. I may here remind you that by no system of ventilation by "extraction" can a change of air more than from three to five times per hour be accomplished without a certainty of causing unpleasant draughts. 6. General cleanliness about the buildings, all incoming air being relieved of its impurities, and all repairs to apparatus executed without the necessity of even entering any habitable parts. 7. By carefully regulating the positions and areas of the incoming and outgoing flues respectively, each department has its air changed without reference to any other part of the building.

It is this last advantage of the system which, in my estimation, makes its adoption for hospital use of such paramount importance, and if it becomes generally realised and adopted, as I firmly believe it ought, I venture to predict it will exercise an all-important influence upon the future of hospital planning.

There is much more I could say on the subject, but will content myself with a note of warning. So far as the principle of the system is concerned it is by no means new; it has from time to time been employed, but, either from want of full knowledge of the requirements or the application of imperfect appliances, failure has but too often resulted, unfortunately to such an extent that men of acknowledged scientific attainment have said in their haste, It is of no good. Nevertheless, in the face of ridicule and the interested misrepresentations of cowl-mongers, steady progress has been made by a few who have the courage of their opinions, so that the system has now passed the experimental stage, and experience has proved it is capable of giving most excellent results in the hands of those who thoroughly understand the details of its requirements; and although I do not consider it is expensive when compared with other less perfect systems of heating and ventilation, it is undoubtedly false economy to stint expenditure which is necessary to give ample power and to supply all appliances for a suitable installation, for by doing so failure is courted.

Internal Wall Surfaces.—The employment of glazed bricks has of late been advocated and adopted in hospital wards, but I am far from being convinced that they are desirable. Not only are they cold in appearance, but, being actually bad conductors of heat, moisture in the atmosphere, which carries with it deleterious organic matter, is condensed on their surface, and trickles down until it is absorbed by the numerous mortar joints, the rough surfaces of which also form ledges on which dust will lodge. Glazed tiles form a better wall surface, and are far more convenient for use, because the rough walls can be more readily built, and then the tile lining can be neatly applied after the building is roofed in. However, I see no reason for a glazed surface above dado height, particularly if the system of ventilation which I have described is employed; for with such the air in the upper portions of the wards is always perfectly fresh and pure. Adamant plaster appears to be better adapted for hospital wall surfaces than Parian cement, which is liable to crack, and is less absorbent than ordinary plaster.

Floorings.—Great importance should be attached to their construction. I know a hospital which has only been occupied some two or three years, yet its insanitary con-

dition is already causing trouble. An examination of the building disclosed the fact that the oak boarding to floors laid on ordinary joisting was not even tongued. The oak boarding having shrunk, there are cracks at least one-eighth of an inch wide. It is a hospital specially devoted to skin diseases. I leave you to imagine what an amount of organic matter has found its way down those cracks to putrefy between the joists.

A solid floor without air-spaces having been required for the New General Hospital, Birmingham, I at first thought of using steel joisting, simply filled in between with cement concrete, and bedding teak flooring solidly upon a layer of bitumen; but having noticed how unpleasantly noise is conveyed by so resonant a material as cement concrete, I induced the manager of the Birmingham Adamant Company to carry out some experiments with a view to overcoming this objection, and believe it can be accomplished by the use of Adamant and breeze concrete blocks. The idea is based on the well-known fact that materials of different densities in juxtaposition more or less neutralise sound vibrations. The concrete employed for the under side of the flooring is of a spongy nature; it is cast into blocks of suitable lengths to fit between the joists—say from 3 to 4 feet by 12 inches wide, and an average depth of 3 inches. Each block is so light that a man can with ease place it in position. The material can be cut or sawn; it is strengthened by means of wood, iron, or steel laths, so as to be capable of sustaining the wet cement concrete, filled in above, until it has set. The under side of the blocks forms an excellent key for the plaster ceiling below.

In addition to securing by these means a solid floor, lighter than one of cement concrete only, and less resonant, no scaffolding or strutting is required for its construction; and there is good reason to believe it will be more fire-resisting than any other method hitherto employed, because the joisting is thoroughly encased with a material which will resist heat, and is but slightly affected by the application of water after it has been exposed to a high temperature.

I may mention that it has been carefully tested, and has been used in moderate quantities with excellent results. The cost compares very favourably with other methods of fire-resisting construction.

Elevators.—In buildings of more than one storey, elevators of sufficient size to conveniently take stretchers mounted on wheels are a necessity, particularly where surgical cases are treated. If wards are at different levels off the same corridor, steps should be avoided, and the levels overcome by inclined corridor flooring, in order that trolleys may be readily conveyed from one part to another, the elevator, centrally placed, being employed from storey to storey; and instead of opening directly upon the corridor—a dangerous arrangement—it is better to have the elevator within a service-room on each floor; and if the hospital be of sufficient size, two may with advantage be supplied, so that one at least may be always available, and a porter can be constantly in charge to work the apparatus. By enclosing the elevators as suggested there is less risk of their acting as shafts by which air can circulate from one floor to another.

The *Kitchen Department* should be placed so that stores can be readily transferred thereto, and the meals easily distributed; yet care has to be taken to prevent the noise, heat, and odour of cooking permeating the building. In town hospitals the top of the buildings is to be preferred if centrally situate, so that the elevator may be employed both for raising stores and distributing meals, which are packed in hot-water jacketed trollies, one for each ward. All processes of cooking can now be economically performed by means of gas and steam; consequently the necessity for raising coal and providing means for lowering dust and ashes is avoided.

Accommodation for Nurses.—In the treatment and care of the sick much depends upon the ability of nurses to perform their duties. Considerable attention has of late been devoted to their training, as well as to their own health and comfort. To this end it is now considered advisable in large hospitals to provide a lecture theatre, in which they may receive instruction other than they gain in the wards; and instead of their sleeping-rooms being in close proximity to the wards, a practically detached building, or nurses' home, as it is usually termed, is provided, wherein each nurse has a separate bedroom, and there are general sitting-rooms.

A conservatory, wherein plants can be brought forward for the embellishment of wards and corridors, may with advantage be utilised as a connecting covered-way between the nurses' home and the hospital, for it is an unnecessary hardship to compel nurses to go out of doors in all weathers when going on or off duty, or when assembling for meals. It is true that in some cases a separate kitchen and mess-room is provided in the nurses' home, but that is neither a satisfactory nor an economical arrangement from an administrative point of view.

Operating-rooms must be well lighted from the north by side and top lights, and should be constructed and fitted so that every portion may be kept scrupulously clean and free from air contamination.

Mortuary.—In the arrangement of the mortuary better attention should, I hold, be paid to decency and the feelings of those who only occasionally visit such places. Death is so common a sight in most large hospitals that the sensitiveness of officials becomes blunted; yet there is no reason why such sights as I have seen should be possible if the arrangement of mortuary buildings received the care which ought to be bestowed upon them. At one hospital I was shown into a narrow apartment in the basement, only dimly lighted by an end window. Some half-dozen bodies were ranged on shelves along the side. Undertakers were at work screwing down a coffin, and bereaved parents, accompanied by two comparatively young children, were taking a last sad look at one that had passed away. All this in what was little better than a cellar! Is it a wonder that hysterical scenes are enacted by sorrow-laden women, taken suddenly into such places to look for the last time upon the mortal remains of those they have loved? The mortuary should be well lighted, of suitable dimensions to allow of biers mounted on wheels being ranged along the sides. Adjoining should be a smaller room fitted up as a mortuary chapel, into which the body to be viewed should be conveyed ere friends are admitted, a waiting-room being provided for their convenience while the necessary transference of the body takes place. The post-mortem room should adjoin or be near to the mortuary, and a pathologist's laboratory should be included in the group of buildings, which should, wherever possible, be detached from the hospital.

Isolation wards are generally required in connection with general hospitals, for, although small-pox and fever cases are now usually treated in special buildings, it frequently happens that patients admitted for some other ailment or hurt develop infectious disease; it is then advisable, for the safety of other patients, that they be removed to an isolated ward.

What I have just said about the treatment of infectious diseases in special hospitals may remind you that I have scarcely referred to that class of building. It is a division of our subject to which I have devoted particular attention, and for that reason dare not at this hour enter upon for fear of wearying you, as it opens up a very wide subject, viz., the conveyance of disease through the outer atmosphere. This is recognised as an assured fact in the case of small-pox, and is more than probable as regards scarlet fever and other disorders.

A quotation from the evidence of Dr. Burdon Sanderson,

given in the report of the Royal Commission which was appointed in 1892 to inquire into the provision of small-pox and fever hospitals for London, to the effect that "hospital wards might be so constructed as to enable the "air, after it has passed through the hospital, to be sub-"jected to high temperature, or some other means of "destroying whatever dangerous properties it may possess, "before it is discharged," so impressed me that, on learning that, although some three or four buildings had been erected with apparatus for subjecting the air thereof to a high temperature, the results were far from satisfactory, I turned my attention to "other means," and have devised a simple method, based on the system of ventilation already described, by which it is believed that air emitted from hospitals, for the treatment of infectious diseases, may be easily and efficiently purified ere it is discharged from each separate ward.

PARLIAMENTARY.

LONDON STREETS AND BUILDINGS BILL.

The Report of the Parliamentary Committee of the London County Council, recommending the adoption of certain amendments in the Bill submitted by the sub-Committee, was brought up for consideration on the 6th inst., and the various recommendations contained therein adopted by the Council [see p. 432]. The following passages are extracted from the report:—

The sub-Committee are of opinion, in which we concur, that, while the proposed amendments will minimise interference with the many classes of property which it is not desired to disturb, they will effect those sanitary improvements (more particularly as regards free access of light and air) which the Council are so desirous to obtain. *Inter alia* the Bill amended by us would effectually prevent the present glaring evil whereby an owner is allowed in re-building upon old sites to make matters much worse than they were before. Moreover—and this is a point of great importance—the Bill as amended would be far easier to administer than in its original form. Legislation under which exemptions tend to become the rule rather than the exception is bad legislation.

For these reasons it will be vastly easier to support the Bill as amended by us in Committee. The concessions which have been made to opponents (whose opposition was to a great extent quite justifiable and reasonable) will greatly diminish the cost of promotion, and, what is scarcely less important with a view to a successful issue, materially shorten the procedure in Committee.

Conference at Paddington Vestry Hall.

A Conference was held at the Paddington Vestry Hall on the 16th inst., attended by about fifty representatives of Metropolitan Vestries and District Boards, and representatives of the Royal Institute of British Architects, the Surveyors' Institution, the Institute of Builders, the District Surveyors' Association, and other bodies. Mr. Arthur Cates and Mr. T. M. Rickman were appointed by the Council of the Institute to represent them at the Conference, when the following resolutions were passed unanimously:—

1. That this Conference of members of Metropolitan Vestries and District Boards, whilst fully admitting the expediency and justice of dealing with land, and regulating the construction or reconstruction of buildings thereon in such a manner as may be conducive to the public interest, considers that many of the regulations set forth in the above-mentioned Bill, should they become law, are neither just, wise, nor expedient, inasmuch as they would tend to check rebuilding, and injuriously retard the development of freehold and leasehold estate.

2. That this Conference considers that a fair amount of compensation should be given where property is taken under compulsion, in the same way as has hitherto been done under existing Acts of Parliament.

3. That the proposed tribunal of appeal is not such a body as to commend itself to public favour, either by reason of its constitution or on the score of economy.

4. That Clause 174 of the Bill, dealing in an arbitrary way with all buildings in course of erection, is a gross injustice.

4A. Against Clause 175, stacking of wood and timber.

5. That the various Vestries and District Boards in the Metropolis be urged to ask their representatives in Parliament to offer strenuous opposition to the passing of the Bill in its present form.

6. That this Conference is further of opinion that the special attention of the Metropolitan Members of Parliament should be called to the public character of the Bill, the complication and difficulty of the subject treated therein, and also to the important interests involved.

7. That a letter be forwarded to the Members of the House of Commons containing copies of the resolutions passed this day, and expressing a hope that they will see their way to oppose the measure on the grounds set forth in such resolutions.

8. That copies of the resolutions be also forwarded to the London press, and attention particularly drawn to the arbitrary and despotic character of certain clauses in the Bill.

The Select Committee.

The following are the members of the Select Committee to which the Bill has been referred by the House of Commons, the first six nominated by the House, the remaining five by the Committee of Selection:—1. Mr. Kimber (Wandsworth); 2. Dr. Hunter (North Aberdeen); 3. Mr. Lough (West Islington); 4. Captain Sinclair (Dumbartonshire); 5. Mr. Whitmore (Chelsea); 6. Mr. Stuart-Wortley (Hallam, Sheffield); 7. Mr. de Tatton Egerton (Knutsford, Cheshire); 8. Sir George Chesney (Oxford); 9. Mr. F. S. Stevenson (Eye, Suffolk); 10. Mr. G. W. Palmer (Reading); 11. Sir Francis Evans (Southampton).

The Committee have chosen as Chairman Mr. Stuart Wortley, and have arranged to meet on Mondays and Thursdays of every week for proceeding with the consideration of the Bill, commencing their sittings on Monday, 30th inst.

LEGAL.

Metropolitan Building Act 1855—Exemptions.

LOVEGROVE *v.* KIRK AND RANDALL.

This case came before a Metropolitan Police Magistrate on the 11th December 1893. The real defendants were the Directors of the London and North-Western Railway, who instructed the contractors not to give notice to the plaintiff, the District Surveyor of South Islington, Shoreditch, and Norton Folgate. The building was erected in Maria Street, Shoreditch, adjoining the North London Railway, to be used as a fodder and harness store, and the summons was taken out to recover the fee under the Building Act. The District Surveyor conducted his own case, and Mr. Lankester was counsel for the railway company, who claimed that the building in question was built by the railway, and could be used for their own purposes; also that the beer was conveyed to the adjoining stores by the railway.

The magistrate decided that the District Surveyor was right, as the building was used by tenants, and not by the defendant company, and allowed one guinea costs. A similar case of an adjacent building in Harwar Street was treated in the same way. The defendants asked for a case, but eventually gave notice to the plaintiff that they would not proceed. The decision that buildings erected by railway companies for the purpose of letting are not exempt therefore stands.